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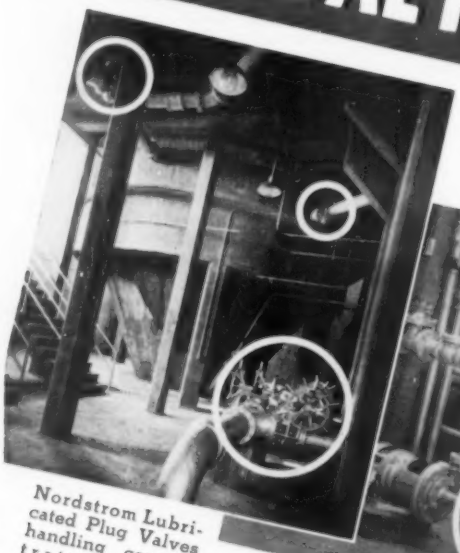
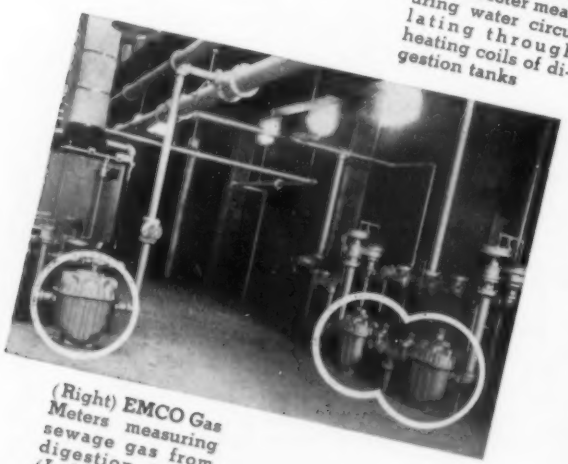


Nordstrom Lubricated Plug Valves handling concentrated sewage sludge

Pittsburgh Hot Water Meter measuring water circulating through heating coils of digestion tanks



(Right) EMCO Gas Meters measuring sewage gas from digestion tanks, (Left) measuring gas consumed by hot water boiler

EMCO SEWAGE GAS METERS

Measure the entire flow from each digestion tank.

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Public Works and Public Finance

The Case for a Larger Public Works Program

THE advocacy of a $2,300,000,000 work-relief appropriation by the present session of Congress, as voiced by the South and Southwest regional groups of the United States Conference of Mayors in New Orleans on February 24, supplementing the previous recommendations of the Executive Committee of the Conference, as reported on this page last month, is a beacon of realism in our present fog of economic and political confusion.

Economy at the expense of the unemployed is an easy way out of the national budget problem only for those who have no budget problems of their own. Responsible municipal officials know that the unemployed cannot be wished away. Some one will have to hire them, or feed them in idleness, budget or no budget. The mayors of our cities have learned by bitter experience the demoralizing effects of the dole, and the vital importance of providing self-respecting useful work for all employables whom industry and trade cannot yet restore to private payrolls.

There must be an answer to the riddle of idleness and bitter poverty in the midst of potential plenty. The case for achieving a high level of general well-being by nationally financed local programs of public works and services, as the most practicable means of restoring normal jobs for our millions of unemployed and of bringing about the much-needed revival of the durable goods industries, is presented by Tage P. Sylvan in his article, "Drawing on Our Reservoir of Wealth," pages 60-61, this issue.

Another stimulating discussion of our unemployment riddle, from which Mr. Sylvan quotes two or three sentences, is David Cushman Coyle's little book, "Brass Tacks," which can be obtained from the National Home Library Foundation in Washington for 25 cents.

Without endorsing in every detail Mr. Sylvan's article or Mr. Coyle's book, THE AMERICAN CITY believes that their clear explanations of why the present situation demands an increase rather than a lessening of Federally financed public works will be a tonic for hard-pressed city officials. With the massive popular demand for economy to the right of them and the imperative necessities of the unemployed to the left of them, our mayors, city managers and other local leaders need such ammunition as these two treatises will furnish them.

Using Property Owners' Own Valuations as Basis for Tax Assessments

CONTINUING his attack on the "condemnation racket" which had flourished under previous administrations in the city of New York, Corporation Counsel Paul Windels, in his annual report submitted to Mayor F. H. La Guardia on February 22, stated that as a device to end some of the excessive claims against the city in condemnation proceedings for street openings, property would hereafter be assessed on the tax rolls at the over-valuation price demanded by the owner of the property.

Said Mr. Windels:

"The beneficial effect of this procedure will work two ways. If excessive awards are obtained as a result of inflated valuations submitted in behalf of claimants, the increased tax revenue which will result from a proper reflection of these factors in the assessment rolls will tend to make up to the city in the course of years the amount it has overpaid as a result of the condemnation proceedings.

"The other and perhaps more important effect will be that if this practice is rigorously enforced, it will act as the most powerful of all possible deterrents to the practice of knowingly presenting outrageously exaggerated valuations in behalf of claimants."

"There recently came to my attention a situation in Queens County where a claimant in a proceeding involving a partial taking appraised his entire property at $4,000,000. It was assessed for purposes of taxation at about $150,000.

"It is apparent that no such valuation as $4,000,000 would have been ventured by the claimant if there were any expectation on his part that such valuation would promptly be reflected in his tax assessment for the ensuing years on the remainder of his property."

Another device invented by Mr. Windels to cut down the cost of interest on condemnation proceedings has been to instruct his subordinates, when counsel to the property owners ask for a delay, to have it stipulated that no interest shall accrue during the adjournment.

Non-Self-Sustaining Municipal Debt Decreasing

A DROP in per capita gross debt from $159.19 in 1926 to $154.40 in 1934, is reported in the total of all funded obligations for the financing of general departments and municipal service enterprises of the 94 municipalities in the United States having over 100,000 inhabitants, according to statistics released February 12 by Director William L. Austin of the Bureau of the Census. This decrease was accompanied by an increase during the same period from $32.13 to $71.37 per capita in the indebtedness chargeable against public service enterprises and investments. In all cases the figures given are gross debt, sinking-funds or other assets not being reported.

These statistics, details of which for the individual cities are obtainable from the Bureau of the Census, cover the government of the city corporation proper and also independent districts practically coextensive with the cities. They also include a per cent of the debt of the county governments for cities having over 300,000 population, in order that data for such cities may be comparable with those for other cities in this class in which the ordinary county functions are performed by the city government.

For the cities in the three population groups (I, 500,000 and over; II, 300,000-500,000; III, 100,000-300,000) the averages of outstanding *per capita* gross debt, incurred for the purposes indicated, are:

	1934	1933	1926
General Departments and Municipal Service Enterprises			
Group I.....	$180.29	$182.74	$201.41
Group II.....	148.88	152.24	114.92
Group III.....	106.01	107.41	97.39
Total average	154.40	156.66	159.19
Public Service Enterprises and Investments			
Group I.....	94.67	91.49	28.53
Group II.....	50.85	51.77	49.81
Group III.....	35.12	35.66	30.73
Total average	71.37	69.83	32.13
Total Per Capita Gross Debt			
Group I.....	274.96	274.22	229.94
Group II.....	199.73	204.01	164.72
Group III.....	141.13	143.07	128.12
Grand total average...	225.77	226.49	191.32

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The Price of Budget Slashing

Pittsburgh's Experience with Traffic Fatalities

PITTSBURGH was declared the safest city in the United States in 1932, and the second safest among cities with populations over 500,000 in both 1933 and 1934. The year 1934 marked the fourth consecutive yearly decrease in traffic fatalities, which, as compared with 1933, increased 28 per cent in Allegheny County outside the city and 7.7 per cent in the state of Pennsylvania. Registrations in the city increased 4.4 per cent, gasoline consumption 7.7 per cent.

In 1935, despite a 2.4 per cent decrease in traffic volume, adult fatalities increased 30 per cent, total fatalities 24 per cent, as compared with 1934. Pittsburgh was one of the four large cities which failed to show a reduction in traffic fatalities, and its per-cent increase was larger than that of any other city with a population of over 500,000.

What happened?

The same traffic equipment was still in place, but practically no additional equipment was erected during the year. On traffic educational projects, $9,000 was spent in 1935 compared with a peak of $24,500 in 1931.

The appropriation for the Bureau of Traffic Planning for 1934 was $170,000; for 1935 it was $141,000, a cut of $29,000 obtained by removing all items for new traffic equipment, by reducing the appropriation for educational purposes, and by eliminating the salary of the head of the Bureau. Enforcement also must have been effected, since fewer than 500 convictions were secured for serious driving offences during the year. This is fewer than two a day in a city of 700,000 population. In accordance with a study made by the National Safety Council, there should be at least five times as many convictions for serious driving violations as the number of personal injury accidents—or 15,000 convictions for the city of Pittsburgh.

Go back a little further, to the appointment in Pittsburgh of the country's first full traffic engineer in the fall of 1924. One year later a Citizen's Better Traffic Committee of 25 members was appointed, which recommended to the City Council the formation of a Bureau of Traffic Planning in the Department of Public Safety, approved by ordinance in 1926.

During 1926 some $42,000 was spent for signs, beacons, and a few isolated traffic signals of the pedestal type, compared with $25,500 spent in 1924.

Still in 1926, the first appropriation of $5,000 for educational work was expended by the Committee, personnel of the Bureau was augmented by an assistant traffic engineer, a draftsman, two stenographers, and eleven laborers, a general traffic count was made, and continued annually to 1935, when it was dropped.

During the organizational period from 1924 to 1930, traffic volume increased 48 per cent and total fatalities 21 per cent. But in this total for fatalities, child deaths showed a decrease of 53 per cent.

During the next five years, on the basis of experience gained and with an increase of 16 per cent in traffic, adult fatalities decreased 47½ per cent and child fatalities 37½ per cent, a total fatality drop of 46 per cent. Traffic equipment in use had been increased by $250,000.

In Lewis W. McIntyre's opinion, "the lesson in Pittsburgh's record seems to be that traffic fatalities can be reduced . . . if the people and their elected representatives have but the will to do so."

There seems also to be a broader lesson. It might just as well be accepted by the citizens of this country that the conduct of a city government requires the expenditure of a rather large and, usually, increasing budget. The increase is due not only to population increase, when such is the case, and to a gradually increasing burden of employment which the cities must assume, but also to the continual rapid development of the mechanical arts which produce ever better machinery and devices for the provision and purification of water, the treatment of sewage, the collection and disposal of refuse and the removal of snow, the lighting of the streets and the control of traffic.

Legitimate and wise municipal economy consists in trying to restrict the personnel to those who belong in it, shrewd purchasing of routine supplies, intelligent engineering that seeks, tests, and installs modern equipment, and the infusion of enthusiasm for efficient recognized performances in every department. Savings made by other methods are too likely to be political expedients achieved by deep cuts into the appropriations for the eternal vital services which municipal governments exist to fulfill.

Let's Have Some More Figures Next Year, Pittsburgh

THE figures in this discussion of the effect of budget-slashing on the efficiency of Pittsburgh's Bureau of Traffic Planning are from a paper by Lewis W. McIntyre, former Traffic Engineer of that city, as presented before the Annual Conference on Highway Engineering at the University of Michigan at Ann Arbor on February 18.

THE AMERICAN CITY has received a letter dated February 28, signed by Donald M. McNeil, Acting Traffic Engineer, and Thomas A. Dunn, Director, Department of Public Safety, in which the other side of the picture is presented as follows:

"During the years 1930 to 1934 inclusive, a five-year period, there was a grand total of 729 traffic fatalities, or an average of 146 persons killed each year in an automobile accident. These figures were obtained from a high fatality rate of 198 in 1930 to a low fatality rate of 107 in 1934.

"In the year 1935, the death rate from accidents in the city of Pittsburgh was 133, being 13 persons less than the average of the previous five-year period.

"In the year 1934, the total accidents reported were 9 per cent in excess of the total accidents reported in the year 1935, making a substantial reduction [in accidents, not fatalities] last year over that of 1934. As indicated from a recent analysis, we find that so far this year there has been a reduction over 1935 of over 20 per cent in total traffic accidents and deaths.

"In 1932, when Pittsburgh was awarded the title of the safest city in the United States, there were 131 persons killed in traffic accidents, which was only two less than last year's traffic fatalities.

"We believe that the city of Pittsburgh has done splendid work and is the only city in America that made an onslaught on drunken drivers. In the last three months of 1935, it had arrested, fingerprinted, photographed and convicted more drunken drivers than in the previous five years. To that end we wish to add that Mayor McNair has had three members of the Allegheny County Bar Association serve as magistrates at Traffic Court, who were far above the average predecessors in understanding the law points regarding the handling of traffic violations.

"In view of the above facts, it is our opinion that the traffic accident situation was improved in Pittsburgh last year, rather than the insinuations made by this paper."

The foregoing letter makes as good a case as possible for the 1935 fatality rate in Pittsburgh by comparing it with the average of the preceding five years, in the first of which the rate was nearly twice that of 1934. While more than one year's record may be necessary for conclusive proof as to whether Pittsburgh's Bureau of Traffic Planning can function adequately with its reduced budget, THE AMERICAN CITY cannot believe that Pittsburgh's municipal government will be satisfied in future with records inferior to those of 1933 and 1934.

Large Capacity Elevated Tanks Eliminate "Low Pressure" at Peak Load Periods

CITIES with elevated tanks of the proper capacity experience no difficulty with "low pressure," The gravity supply maintains a relatively uniform pressure in the distribution system at all times.

It also acts as a balance in maintaining the necessary reserve, for when the pumping rate exceeds the consumption rate the excess flows into the tank. When the consumption rate is the greater, water flows from the tank to make up the difference. The pumping rate need not be varied with the consumption rate.

Radial cone tanks are ordinarily used for municipal service when large or medium-sized tanks are installed and Horton ellipsoidal tanks for capacities under 500,000 gallons. These designs permit the construction of tanks up to 2,000,000 gallons capacity with a range in head of as little as 25 feet.

The use of elevated storage tanks in municipal waterworks systems effects savings in the following ways:

1. *Water main costs—because transmission mains need only be large enough to handle average pumpage instead of peak loads.*
2. *Minimum pumping equipment—because pumps can be operated continuously to keep the elevated tank full. Thus pumping equipment does not have to be of large capacity to handle peak-load pumping.*
3. *If electric power is used, a possible additional saving by pumping part of the water supply into the elevated tank during early morning hours or at other times when power rates are low.*

We shall gladly point out to waterworks engineers and municipal officials the advantages to be gained through elevated storage. Estimated costs of contemplated installations will also be supplied. Write our nearest office.

A 1,000,000-gallon radial cone elevated tank installed at Rocky Mount, N. C. The height to bottom is 100 feet.

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Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Works: Chemicals--Accounting

Best Ways to Feed Water-Works Chemicals

THE feeding of water-works chemicals depends upon the characteristics of the different chemicals. These have been summarized in an interesting manner by L. E. Harper, Vice-President, Omega Machine Co., Kansas City, Mo., in a paper presented before the Kansas Water and Sewage Works Association as follows:

Lime.—This chemical has a tendency to arch over in the hopper of many machines. The tendency is more pronounced in damp weather. On the other hand, when it becomes fluffed up and slightly mixed with air, it will flow almost like a liquid. This often happens in dry feeders when lime is arched over the hopper. When the arch is broken, the chemical flows down rapidly and air is entrapped, and the lime will flow continuously through small openings much as a stream of water. At ordinary temperature, only about 70 grains of lime may be actually dissolved in a gallon of water. Thus, a solution feeder requires constant agitation to keep lime in suspension.

Alum.—This chemical now is almost always fed in ground form through dry feeders. It is free-flowing, and agitators are not required to keep it from arching in the storage hoppers. Powdered alum has the characteristic of building up flint-like coatings or layers on any mechanical parts which move through it.

Soda Ash.—Problems involved in handling soda ash are similar to those met with in handling hydrated lime. The dry powder does not flow as readily as lime, and sometimes it has a greater tendency to arch over in the hopper. Soda ash is fairly soluble in water at ordinary temperatures, and for very small filter plants it can be fed from a solution feeder and does not require agitation.

Iron Sulphate or Copperas.—This is a free-running, coarse-grained salt and can be fed quite easily from dry feeders. It is handled much in the same manner as alum. It can also be handled in a solution feeder.

Sodium Aluminate.—This is a heavy, gritty, tan-colored powder. It has a tendency to cake very badly in the presence of moisture and, as a rule, not more than a day's supply should be placed in the hopper of a dry feeder. It can be handled quite nicely in a dry feeder as long as it does not cake or become lumpy. It may be fed in a solution feeder, but considerable sludge results, which must be removed frequently.

Activated Carbon.—This is one of the most difficult chemicals to handle. It weighs only 10 to 15 pounds per cubic foot and is very compressible. It does not go into solution, but must be carried in suspension, and it is difficult to wet. Being light, it is very dusty if it is carelessly handled. It is best handled in a dry feeder, inasmuch as constant agitation is required to keep it in suspension in water. The mixing chamber of the dry feeder must have adequate means of thoroughly wetting the carbon. Dust-removal equipment is a valuable adjunct to feeders for handling this material. Activated carbon in suspension is very corrosive. Cast iron parts or steel piping are attacked and rapidly destroyed by it. For this reason rubber hose is recommended as the best method of conveying activated carbon in suspension.

Hypochlorite Solutions. — Whether made from HTH, Perchloron or ordinary chloride of lime, hypochlorite is best fed in solution. The reason for this is that solutions are more stable than the dry material. Since the amounts to be fed are as a rule quite small, a displacement type of solution feeder is probably the most accurate method of applying hypochlorite solutions. Where the amounts to be fed are greater than can be easily handled in this type of feeder, liquid chlorine should be used, since in larger feeds it is more economical. The addition of soda ash will further stabilize hypochlorite solutions, and for very small plants and swimming pools enough soda ash may be fed in this manner to maintain the proper alkalinity.

Ammonium Sulphate.—This chemical may be fed in dry feeders, especially in large amounts. However, it has a tendency to absorb moisture and cake up in dry feeders and is somewhat corrosive. Since it is very soluble and a large amount can be dissolved in a small quantity of water, it is more satisfactory to feed it in a solution feeder. One pound of ammonium sulphate to one gallon of water can be handled very easily. The solution is quite corrosive and the parts with which it is to come in contact must be made of materials which will resist its action.

Sodium Bisulphite.—This chemical is used for dechlorination. The amounts used vary; 1.6 parts per million gallons will remove 1 ppm of chlorine. It contains 65 per cent sulphur dioxide and has the appearance of table sugar, and since it is very soluble it can be fed in a solution feeder. In larger quantities, it may be fed in a dry feeder.

Copper Sulphate or Blue Vitriol.—This chemical is usually applied directly to lakes and reservoirs by hand. Where it is possible to use it in a feeder, the solution type feeder is recommended.

Piping for Chemical Solutions.—The problem of conveying solutions or suspensions of various chemicals is frequently a difficult one, on account of the corrosive nature of the chemical to be handled or the tendency to clog piping. For practically all chemicals, there is nothing equal to rubber hose, because it can be used for conveying either acid or alkaline chemicals. Of course, it must be properly supported so that there will be no pockets in which to entrap air. If metal piping must be used, lead is quite satisfactory for alum solutions, and iron and steel for the alkaline solutions. Solutions of chlorine, ferric chloride, etc., should be handled in rubber hose.

The Need for Better Accounting in Municipal Water Plants

WE have come to realize that a lot of goodness is hidden under the skin of municipal ownership, but this must depend on purging technical jobs of politics and placing them on the merit system. When this condition becomes more general, much of the smoke from the battleground will blow away and a cleaner picture will be presented. With capable personnel and approved accounting systems, the municipal plant will be enabled to present proper financial statements, showing the actual source of income and the actual expense incurred, so that taxpayers and patrons may know just what their property is doing and why it is doing it, and may thus formulate intelligent opinions of their own, rather than having to depend upon the statements of others who may be misinformed or may have an ax to grind.

The average patron of any utility is primarily interested in good service at reasonable rates. He wants to know that the cost of his service is not excessive as compared with that of like utilities. This can be accomplished in municipally owned utilities by the use of the uniform classification of accounts. With that as a foundation, the facts can be recorded in books adapted to individual requirements. When the final statements are prepared, the true costs will be disclosed and a dependable comparison can be made with privately owned utilities. Immediately any differences in cost will be revealed and the reason for such variations should be readily obtainable.

Before any intelligent or fair comparison can be made between the cost of public and of private plants, we must first establish the relative costs on a comparable basis by applying the same accounting standards to each. We must know that all costs are reflected in the books, that depreciation has been properly recognized, that the element of tax burdens or tax freedom has been considered, etc. Then we must consider the physical layout of each plant and the conditions under which it necessarily operates, such as source of supply, kind and degree of treatment, etc. We must then have all the variable factors and make proper adjustment for them. Then only can a proper comparison be made. No helpful conclusions can be reached by a simple comparison of rates in effect without allowing for the variables.

From a paper, "Accounting Uniformity," presented by Harry Boggs, of Herdrich and Boggs, certified public accountants, Indianapolis, Ind., before the American Water Works Association.

THE *shortest* DISTANCE BETWEEN *these* TWO POINTS IS LAYNE

HIGH PRODUCTION

LOW COST

What is your water supply problem? More water? Less cost? Then here is the solution: Actual experience has proven to thousands of industries and municipalities the world over that Layne Pumps and Well Water Systems invariably mean the greatest possible volume at the lowest possible cost.

Layne is the world's largest and oldest water developing organization. Near you is one of its representatives. Why not call on him for a discussion of your water supply problem? His visit involves no obligation, so address a letter or card today to the address below and the nearest Layne representative will get in touch with you.

LAYNE & BOWLER, INC.

General Offices Memphis, Tenn.

LAYNE PUMPS and WELL WATER SYSTEMS

Otto Paust

Stabilized Roads and Airport Construction

Stabilization Defined and Described

STABLIZATION is the process of giving road soils enough abrasive resistance and shear strength to accommodate traffic under prevalent weather conditions, without detrimental deformation. The methods employed include the use of admixtures, compaction and densification. Admixtures other than water may be soil materials, deliquescent chemicals, solutions of electrolytes, soluble cementitious chemicals, primes and neutralizers, and insoluble binders.

Admixtures of soil materials are intended to provide a road material containing enough coarse aggregate to resist the abrasive action of traffic; a combination of coarse sand and fine sand in amount sufficient to provide the interlocking soil grains which prevent sliding; a quantity of silt to act as a filler and to provide the capillary bond necessary for stability when the binder clay loses cohesion in wet weather; and clay to retain the minute cohesive films after the larger capillary films have evaporated, and thus provide stability during dry weather.

Materials falling within the following composition limits, by weight, satisfy these requirements and should produce good surfacing layers:

Passing	Percentage
1-inch sieve	100
¾-inch sieve	85-100
No. 4 sieve	55-85
No. 10 sieve	40-65
No. 40 sieve	25-50
No. 270 sieve	10-25

It is the function of deliquescent chemicals to assist in maintaining that surface dampness which is so important in soil roads. Calcium chloride is the principal chemical used for this purpose. Magnesium chloride might also be of benefit. Such materials have the property of absorbing moisture from the air and slowing up the rate at which soils lose moisture between rains. Without proper grading of soil materials, deliquescent substances cannot be expected to furnish benefit other than possibly a laying of the dust.

Common salt is commonly, but erroneously, referred to as a deliquescent material. It is more properly a soluble binder which cements by crystallization during dry weather.

—From a paper on Stabilized Soil Roads by C. A. HOGENTOGLER and E. A. WILLIS, Senior Highway Engineer and Assistant Highway Engineer, respectively, U. S. Bureau of Public Roads, Washington, D. C., published in *Civil Engineering*, December, 1935, page 758.

Cotton Fabric Reinforcement of Bituminous Airport Runway

THE use of cotton fabric for reinforcing a section of a runway at the Newark, N. J., airport has been approved by the Department of Commerce, according to a report in the *Newark Evening News*. This will be the first time that this material has been used on an airport runway, although cotton has been used for this purpose for some time in building bituminous highways in the South.

Engineers promoting the use of cotton claim that it prevents surface cracks in the pavement. There are four main runways at the airport except for the section on which the cotton will be tried. They will be constructed of cracked stone and penetration asphalt.

The runway work is part of the general improvements to be made at the Newark airport under WPA. The cotton will be used on a strip of east-west runway 200 x 700 feet. The material is a heavy cotton cloth, twelve threads to the square inch, which will be placed between the earth base and the upper surface of asphalt.

The work to be undertaken immediately will consist solely of the sub-surface drainage, and the actual paving will be done in the spring of 1936.

The Future of the Akron, Ohio, Airport

WHAT is the real story about the cost of the Akron municipal airport? What work has been accomplished? These pertinent questions are answered in Monograph 87 issued by the Department of Public Service and prepared by Arthur R. Barbiers, Assistant Highway Engineer, and formerly Airport Resident Engineer.

In 1927 the city of Akron became "air-minded" and starting looking around for a site. Several were chosen, among them a small 20-acre field known as Fulton Field. However, about that time the Goodyear Tire & Rubber Co. received the contract for two Zeppelins, which necessitated a huge hangar or dock. They received many flattering offers from other cities if they would transfer their lighter-than-air operation elsewhere, but, being civic-minded, this company decided to make Akron the lighter-than-air center of the world, if the city would make certain concessions. To these the city agreed, and, at the instance of the Goodyear Company, chose Fulton Field as being ideal, as it lies in a valley with prevailing winds as desired, and the location is close to the company's plant.

After the selection of the site, and before any of the 150 or more parcels of lands had been acquired, a general plan was evolved by the Goodyear Zeppelin engineers and those of the city of Akron. The most important features of the plan were: grading, clearing and grubbing; main storm and sanitary sewers; water mains; relocation of about two miles of the B. & O. Railroad; relocation of about two miles of paved road; construction of a rolled embankment base for the Goodyear Zeppelin dock; removal and restoration of top-soil over about one-half the area of the field, and a sub-drainage system; construction of an airplane runway system; and construction of two bridges over the relocated railroad.

In November, 1928, after some contracts had been let, ground was broken, and from then on until 1932, the airport was a busy and noisy place as hills were flattened and valleys and swamps filled. Over two million cubic yards of earth were removed, two miles of railroad were moved, roads and bridges built, sewers, water and a sub-drainage system installed. The last improvement completed was the administration building, and then came the bottom of the depression and the airport lay quiet. No more bonds could be sold, so no more work. The total cost of the airport to the city amounted to about $2,500,000 and, in addition, the local public service companies spent $134,000 for their installations, and the B. & O. Railroad Co., $91,150.

In 1934, CWA moved about 110,000 cubic yards of earth, and at the present time WPA is engaged in moving 88,000 cubic yards, to make an earth stadium and at the same time to fill a swamp that was filled but had settled, and is also moving 36,000 cubic yards to prepare an industrial site. This Government agency will also endeavor to construct 200,000 square yards of hard-surface runways.

The airport has not been a finished product at any time so far, and will not be at the end of the present WPA operations. Perhaps it may never be, as the port should grow with the times. Contemplated improvements which should be made in the near future and for which WPA applications have been submitted are:

Grading 130,000 cubic yards in the area of the port lying east of the present B. & O. and north of the abandoned Barberton-Springfield road; the grading of the uncompleted north end of George Washington Boulevard and the paving of the entire road; and the completion of the circular pavement at the intersection of Triplett Boulevard and Massillon Road.

The following improvements are also desirable: the paving of a 20-foot road, 60 feet south and parallel to Triplett Boulevard from the circle at Massillon Road and Triplett Boulevard to the bridge over the B. & O. Railroad; and the completion of the stadium to a structure of concrete and steel instead of earth as now contemplated.

B. E. Fulton, the present Airport Manager, contemplates a race track, a swimming pool, a hill for the National Soap Box Derby, and many other commendable projects that will make the airport the playground of Akron. Could all the contemplated projects be realized, the airport will become a thing of beauty with places for play for thousands.

WHAT DOES SUPERTWIST* MEAN ON Municipal Hauling Jobs?

***SUPERTWIST**

Supertwist Cord is the best cord ever developed for truck and bus tires. It's made of Pima Cotton, the longest and strongest cotton fibre grown. It's pre-shrunk. It's wet-twisted, with more twists to the inch than ordinary cord. Supertwist Cord gives a greater foundation strength to the body of a truck tire. This makes possible the use of a much tougher compound of rubber. It makes possible Goodyear's High Profile tread shape, reducing to a minimum the destructive internal heat generated inside the tire. It makes possible greater side wall area, allowing this reduced heat to be thrown off more readily.

Supertwist Cord is an exclusive Goodyear feature patent protected. You get it in no other tire.

BUILDING and repairing roads, collecting garbage, on street cleaning trucks and city owned buses — on all municipal hauling jobs — Goodyear Truck Tires give you the kind of service you want . . . long, dependable, economical.

One reason is Supertwist Cord—the kind of cord Goodyears are built with. Supertwist Cord provides extra strength for those heavy loads — strength that means sure dependable service, "on time" schedules. Supertwist means durability, long life, more miles—lower cost per mile operation.

These are the reasons why you'll save money with Goodyear Truck and Bus Tires—

- **MAXIMUM TRACTION**—with that famous All-Weather tread.
- **EXTRA-STRONG BEAD CONSTRUCTION**—for heavy, swaying loads.
- **HIGH PROFILE TREAD SHAPE**—more rubber on ground, more pulling power.
- **GREATER BODY STRENGTH**—because of Supertwist Cord.
- **HEAT-RESISTING RUBBER**—blow-out protection, longer wear.
- **PIMA COTTON**—longest cotton fibre grown.

Put Goodyears on *your* trucks and buses. Convince yourself they're MONEY SAVERS.

THE GOODYEAR TIRE & RUBBER COMPANY, INC., AKRON, OHIO

GOODYEAR TRUCK AND BUS TIRES money savers

Cleaning Streets and Catch-Basins

Paterson, N. J.

WE have a block system of cleaning by sixteen men in our business districts, and a flying squadron of twelve men who clean the outlying districts. The streets of the latter are cleaned once a week. In addition to these, we have a motor-driven pick-up sweeper which takes in all the streets.

Our motor equipment consists of an Austin motor pick-up sweeper and one 10,000-gallon capacity flusher on a Walters motor truck.

We start our street cleaners at work between 5:30 and 6:30 in the morning when there are very few cars parked. The motor sweeper operates after midnight.

All catch-basins are cleaned by hand.

JOHN J. SHORTELL,
Street Commissioner.

Wheeling, W. Va.

ON the paved streets of Wheeling, a motor pick-up sweeper is used, supplemented by five GMC, four Chevrolet, two White and one Dodge truck for pick-up service and in conjunction with some hand cleaning.

The Police Department effectively handles the parked-car nuisance.

Catch-basins are cleaned with an Auto Eductor.

H. A. CONRAD,
City Engineer.

Springfield, Mass.

THE streets of Springfield, Mass., are cleaned by hand labor and machine washing. We have four street sprinklers —one Packard with a 1,200-gallon capacity tank, and three Whites with 1,500-gallon capacity tanks.

Signs are erected in the business section of the city stating the time and distances for parking.

All catch-basins are cleaned by hand labor.

WILLIAM J. SHEA,
Clerk, Department of Streets and Engineering.

Royal Oak, Mich.

WE use a Model A-8 motor pick-up sweeper for street cleaning in Royal Oak. Where there is an accumulation of dirt in the gutters between sweepings, we sometimes detail a few men with hand brooms and shovels to do this clean-up work.

In order to overcome the parked-car nuisance, our sweeper works at night, when the business district is practically free of cars.

Catch-basins are cleaned by hand with long-handled spoons. The cleanings are left piled at the side of the basin, and a follow-up truck hauls them to the dump.

E. J. GIFFELS,
City Engineer.

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

Newton, Mass.

HAND section work and two Model D motor pick-up sweepers are used to keep the streets in first-rate condition.

The parked-car nuisance is handled by two shifts day and night.

All catch-basins are cleaned by hand.

CHARLES A. MAHONEY,
Street Commissioner.

Butler, Pa.

THE streets are cleaned by hand and with a motor pick-up sweeper served by trucks for the removal of material that is dumped on the street whenever the hopper is filled. We do not do anything about the parked-car nuisance but just work around the cars.

The catch-basins are cleaned by hand loading into a truck, which hauls the material into a local dump.

FRED M. HARPER,
City Engineer.

Hagerstown, Md.

THE motor equipment used for cleaning streets in Hagerstown consists of one Austin power pick-up sweeper of 6 tons capacity, one 2½-ton International truck and two hand-carts. The motor sweeper periodically covers all the improved streets of the city. The business section is covered nightly; main residential streets weekly; side streets at least once monthly; and, in addition to this, there are two hand-cart sweepers who cover the alleys daily in the business section. The sweepings as collected by the sweeper are deposited at convenient locations in and about the city and are collected the following day by the 2½-ton truck with a driver and helper.

All the street cleaning is done during the night with the sweeper operating between 11 P. M. and 8 A. M. A special ordinance was required to keep the streets cleared for this cleaning. The ordinance prohibits parking at any time and at any place in the city between 1 A. M. and 4 A. M.

Catch-basins throughout the city are cleaned three or four times each year in rotation by using the regular street forces split up into smaller units.

SAMUEL L. GREENAWALT,
City Engineer.

Cincinnati, Ohio

THE city of Cincinnati uses for street-cleaning operations mechanical sweepers, flushers and hand brooms. The present equipment consists of four Elgin mechanical sweepers; four 1,500-gallon Municipal Supply Co. flushers; and one 800-gallon flusher designed and constructed especially for alley work. We are also purchasing one new 3,000-gallon flusher.

The question of the parked-car nuisance has not been solved in this city.

In disposing of street sweepings, twelve 5-cubic-yard trucks are used. Catch-basins are cleaned by hand labor as well as by ejectors. We have two ejectors at the present time.

J. E. ROOT,
Director, Department of Public Works.

Auburn, N. Y.

THE streets of Auburn, practically all of which are paved, are cleaned both by hand and with a motor-driven pick-up sweeper and a motor-driven street flusher. An Austin-Western pick-up sweeper is used and a Hvass 1,200-gallon flusher mounted on an International Harvester motor truck.

There is a city ordinance against all-night parking but, as in the case of most other cities, it is not 100 per cent effective.

Catch-basins are all cleaned by hand.

J. J. TEHAN,
City Engineer.

River Forest, Ill.

WE keep our streets in prime condition by hand labor, using four 5-ton Diamond T trucks and two small Ford trucks to pick up the material piled in the gutter by the hand laborers.

We are fortunate in having no parking nuisance in River Forest, since the town is almost entirely residential, and cars are stored in garages and not on the streets.

Catch-basins are cleaned by hand.

ARTHUR J. POCHERT,
Superintendent of Public Works.

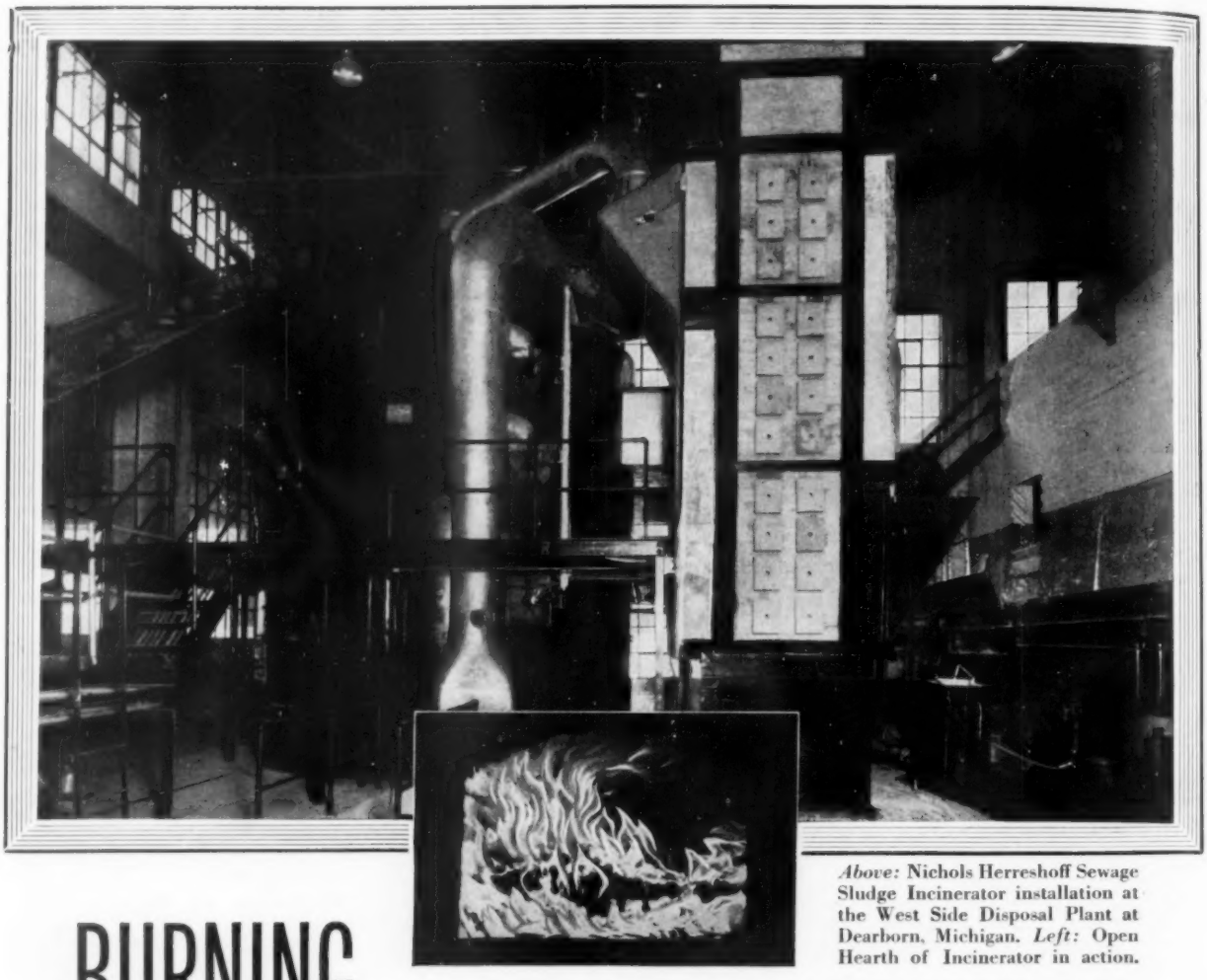
Concord, N. H.

WE hire four street sweepers during the summer months, who keep the streets in the business sections clean. We flush the streets in the main part of the city each day with a 1,000-gallon tank Kinney flusher.

The parked-car nuisance is handled by having the man who runs the flusher start working at 3 o'clock in the morning. The street sweepers have to sweep around the cars.

We hire a gang of men each spring and fall to clean the catch-basins with long-handled cleaning spoons.

FRED W. LANG,
Commissioner of Public Works.



Above: Nichols Herreshoff Sewage Sludge Incinerator installation at the West Side Disposal Plant at Dearborn, Michigan. *Left:* Open Hearth of Incinerator in action.

BURNING IS THE ONLY METHOD OF *COMPLETE* SEWAGE SLUDGE *DISPOSAL*

The burning of sewage sludge, as accomplished by the Nichols Herreshoff Incinerator, destroys bacteria and organic matter, leaving as a residue a fine, clean, inert ash.

The introduction of this equipment marks a significant phase in municipal sanitation, and assures a thoroughly satisfactory and economical method of *complete* disposal.

It makes the unsanitary, unsightly and malodorous sludge pile a thing of the past.

Back of this equipment is more than fifty years of intensive experience in the chemical, metallurgical and other fields—a reputable organization equipped with an experienced engineering staff ready to assist you in solving municipal waste disposal problems.

NICHOLS HERRESHOFF SEWAGE SLUDGE INCINERATOR

NICHOLS ENGINEERING & RESEARCH CORP.
40 WALL STREET, NEW YORK

PACIFIC FOUNDRY CO., LTD.
3100 NINETEENTH STREET, SAN FRANCISCO

Sewer Rentals and Sewage-Treatment Plants

Sewer Connection Rates

AN ordinance passed October 8, 1935, by the City Council of Effingham, Ill., sets up the following rates for the use and service of the sewerage system of the city:

Bathtub, 10c per month
Lavatory, 10c per month
Stool, 15c per month
Urinal, 20c per month
Drinking fountain, 10c per month
Basement floor drain, 10c per month
Sink drain, 10c per month
Floor drain receiving industrial waste, $1.00 per month
Garage wash rack drain, $1.00 per month
Shower bath drain, separate from bathtub, 15c per month
Outside drain, 15c per month
All the other connections not classed in above, 25c per month
Minimum charge for sanitary sewer connections, 50c per month, $1.50 per quarter

The ordinance provides that if these rates are not sufficient to finance the operation and maintenance of the sewerage system, to provide an adequate depreciation fund, and to pay the principal of and interest upon all the sewerage revenue bonds, the Council must increase the rates so that they will be sufficient to provide adequate revenue.

Sewage Works Plantings

ALMOST any type of tree, shrub, or perennial flower which is native to or will thrive in the locality where planted is adaptable for use on the grounds of a sewage-treatment plant, so that it is not necessary or desirable to provide either rare or foreign vegetation. For high shrubbery, privet, honeysuckle, spirea, forsythia, weigelia, mock orange, golden elderberry, or even the common native elderberry, may be used; for low hedges and for banks, barberry, snowberry, coral berry. Around the main building hydrangea or hills-of-snow, Japanese quince, flowering almond, forsythia, bridal wreath, etc. Next to the walls of glass-covered sludge beds, where low walls are the rule, thick-growing perennials, such as the common variety of day lilies or iris, are excellent. For screens along the sides and back of the grounds, if shrubs are not possible, a pleasing summer growth can be had with hollyhocks, golden glow and elderberry.

In the beds about the main building of the sewage-treatment plant at Sharon, Pa., are iris, delphinium, poppies, cannas, and fall chrysanthemums. A solid row of zinnias and asters along the front of the hedges which face the entrance view provide a pleasant vista for visitors. These two are the only annuals tried so far at that plant which are easily grown and furnish color in the fall.

It is not necessary to employ a landscape architect to draw up the plans for the site of the sewage works in a small community. The engineer in charge can make up the grading and road layout, and the local nurseryman is always glad to advise and assist without fee on the layout and type of vegetation best adapted for the place, and, if honest, will be better at the job so far as costs and planning are concerned, since it will be a conspicuous advertisement for him. Many of the flowering perennials can be secured by donations from the citizens of the community at times when they are thinning out their private gardens.

The minimum plan in landscaping the site consists of well-shaped grading, good grass lawns, and trees about the boundaries. Further landscaping can be done to any degree those in charge may desire, but an extreme can be reached in this work just as in any other. It is not advisable nor in good taste to attempt to elaborate the work to an extent found on a private estate. It is enough to dress the structures and grounds in pleasing harmony, with a dash of bright color here and there, screens to conceal the unsightly areas, open lawns at the front and sides of the structures—this is fully sufficient and can be accomplished at not more than ½ to 2 per cent of the cost of the works.

—From a paper, "Beautifying the Sewage Treatment Plant," presented by LEWIS E. BURNSIDE, City Engineer, Sharon, Pa., before the ninth annual conference of the Pennsylvania Sewage Works Association.

Coagulants

THERE are several different types of chemicals used as coagulants, to aid the settling of sewage. Most of the chemicals now suggested were known and used forty or more years ago, but their cost and the difficulties of disposing of the large volume of sludge produced, together with the fact that other modes of treatment were available which were then capable of producing better effluents at less cost, resulted in the almost complete abandonment of the process until quite recently.

The coagulants used today include iron salts, lime, alum, chlorine, etc., and insoluble solids such as paper pulp, clay, sludge, etc. The Laughlin process employs lime, gelatinized waste paper and ferric salts. The precipitated sludge is concentrated and removed from the clarifying tank, and the liquid passes upward through a layer of magnetite sand, which is periodically cleaned by the use of a traveling magnet. The effluent may be chlorinated for sterilization and further B.O.D. reduction. The sludge is dewatered on vacuum filters and disposed of by dumping or incineration.

The Guggenheim process utilizes iron salts and lime, followed by filtration through a specially prepared Zeolite. The sludge is dewatered by filtration and is disposed of by incineration. The iron is recovered from the ash, and the ammonia of the basic nitrogen compounds is recovered from the salt solution used for regenerating the Zeolite.

A number of other processes are still in the experimental stage, using iron filings and chlorine to produce iron hydroxide as a coagulant and chlorine as a disinfectant.

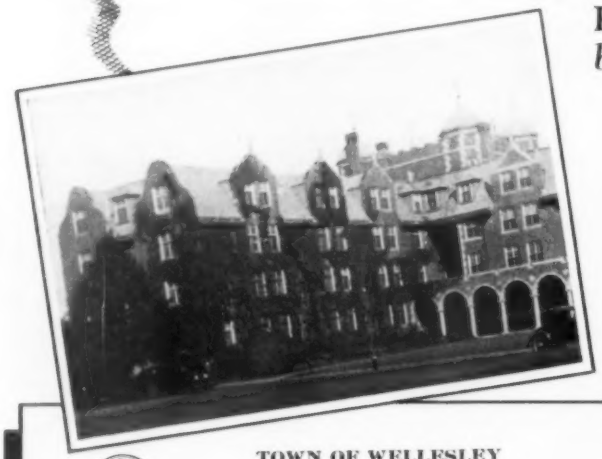
—From a paper by CHARLES A. HASKINS, consulting engineer, Kansas City, Mo., on trends in sewage-treatment practice, presented before the Kansas Water and Sewage Works Association.

Treating Dairy Wastes

THE report of the Water Pollution Research Board, London, England, for the year ended June 30, 1935, gives instances of serious pollution of rivers and streams and of the difficulties at sewage treatment works which have resulted from the discharge of effluents from dairies and milk products factories. Pollution of this kind has increased in England to such an extent during the past few years that the development of means of dealing with the problem has become a matter of some urgency. Experiments carried out in the laboratories of the Rothamsted Experimental Station and of the Birmingham, Tame and Rea District Drainage Board have indicated that the waste waters from washing churns, other equipment and factory premises can be satisfactorily purified by biological oxidation in percolating filters and by the activated sludge process. These processes, which are similar to those in operation at many sewage-treatment works, are now being examined on a large scale in two experimental plants.

A PANORAMA OF THE HANOVER BOROUGH SEWAGE WORKS IN YORK COUNTY, PA.

DORMITORY FIRE
automatically discovered in
FAMOUS WOMEN'S COLLEGE *by* GAMEWELL SPRINKLER SUPERVISORY EQUIPMENT



Brings Fire Department to Dormitory before Occupants Learn of Fire

WITHIN a few seconds after a sprinkler head operated in Cazenove Hall, Wellesley College, and deluged water upon a fire in a student's room, a *Multifold* Fire Alarm Box mounted outside the dormitory, tripped automatically and flashed its alarm directly to the Wellesley municipal fire department.

Firemen responding, arrived at the dormitory before the occupants were aware that a fire had broken out. The Rockwood sprinkler system had effectively extinguished the fire and the fire department immediately shut off the sprinklers and prevented unnecessary water damage.

The loss was confined to within $500.00, yet the building in which the fire occurred is one of four dormitories housing more than 500 students and having an insurable value of about $2,000,000. Thus, the value of automatic sprinklers connected to the municipal fire alarm system is clearly evident.

This simple connection, often referred to as the Gamewell *Sprinkler Watchman* is an invaluable aid to every municipal fire department and a real protection to every sprinklered property. It is simple and practical and its cost is within reach of the smallest property having a sprinkler system.

Through the recommendations of many fire department and insurance officials, hundreds of these *Sprinkler Watchman* connections are now in service. Every fire chief and superintendent of fire alarm should encourage owners of sprinklered properties to connect their sprinkler systems with the municipal fire department in this *direct manner*. Write for a copy of our booklet AC1200 describing the *Sprinkler Watchman*.

TOWN OF WELLESLEY
FIRE DEPARTMENT
WELLESLEY, MASSACHUSETTS

THOMAS H. SLAMAN
Chief Engineer

The Gamewell Company
Newton Upper Falls
Massachusetts

Gentlemen:

The fire at Wellesley College on October 3rd recalls to my mind the questions that were raised in regard to the advisability of permitting this institution to be connected thru your master box to this department. While I was convinced, thru demonstrations made three years ago at the time this installation was made, that the plans to connect the sprinkler system at Wellesley College to the municipal fire alarm system by means of the Sprinklarm device and Master Fire Alarm Box was for the best interests of all concerned, I am frank to say that this practical experience has justified completely my confidence in the reliability of this device.

The experience of this department during the past three years has been entirely satisfactory, as no false alarms or other difficulties have been encountered.

The promptness of receiving the alarm on October 3rd at 5:22 P.M. which enabled my department to arrive at the college before any serious damage could materialize, either from the effect of the fire or the opening of the sprinkler system, causes me to emphasize the value of your automatic Sprinklarm device as the most direct and reliable means of summoning the aid of the fire department.

Our investigation of the fire disclosed that one of the students apparently had been smoking a cigarette and, while she claims to have extinguished it before leaving, still a waste paper basket full of papers had caught fire, spreading to a dresser and thus setting off a sprinkler head directly over the same. The occupants were not aware of any fire until the arrival of the fire department, altho they saw evidence of water leaking thru the walls. The response of the Sprinklarm was so instantaneous with the setting off of the sprinkler head that my department received the alarm thru your Master Box instantaneously, and we were on the grounds within a few minutes. While the sprinkler system had extinguished the fire, the department was able to immediately shut off the main sprinkler valve, thus bringing down the loss from the fire and the water to approximately $500.00.

I have no hesitation in recommending to my brother chiefs thruout the country the adoption of the policy of permitting Gamewell Master Boxes and Sprinklarms to be connected to their departments.

Very truly yours,

Thomas H. Slaman

Chief Engineer Fire Dept.

The effective manner in which Wellesley College officials protect the lives of their students against fire is clearly evident in Chief Thomas H. Slaman's account (above) of a fire which broke out in one of the college dormitories.

Chief Slaman is shown (right) along side of the Gamewell fire alarm box on Cazenove Hall, the building in which the fire occurred. This box connects the sprinkler systems in four of the college's dormitories directly with the Wellesley fire headquarters.

PROOF!

Fire Chief Thomas H. Slaman contributes here, one more practical experience to the fast growing record establishing the importance of connecting sprinkler systems with fire headquarters through Gamewell's *Multifold* fire alarm boxes.

THE GAMEWELL COMPANY
NEWTON, MASSACHUSETTS

During March we hope you will remember to mention THE AMERICAN CITY

Public Safety

What the Fire-Alarm Telegraph Means to Cities

ONE of the first uses of the telegraph system, after its invention by Morse, was to provide means of calling for aid against that most destructive agency—fire.

With all the modern inventions in signaling work—telephone, teletypewriter and radio—the telegraph method of transmission remains the most desirable form of fire-alarm signaling. Its simplicity, the sureness of code transmission, the freedom from outside influences, and its ease of maintenance, together with its reliability of operation when properly maintained, are factors making the fire-alarm telegraph system an essential in the fight against destruction by fire.

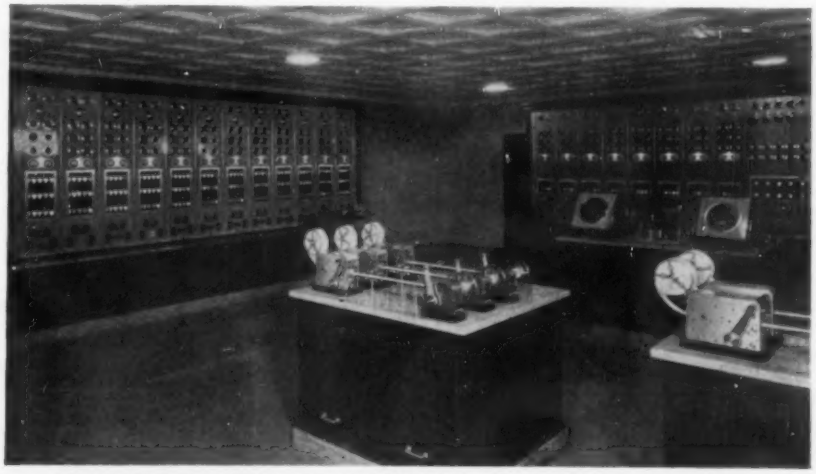
The fundamentals of fire-alarm service are the same as those developed more than three score and ten years ago, but improvements in equipment have been continuous. The general introduction of commercial telephone service halted, to a marked degree, the complete equipping of American cities with fire-alarm telegraph systems; but at best the telephone service can serve only as a valuable auxiliary to the municipal fire-alarm telegraph system. Recognition of this is shown by the reports of that most complete authority on conflagration, The National Board of Fire Underwriters. Consistent recommendations of the engineers of that board are for the installation and further improvement of fire-alarm telegraph systems. The need of this system in the larger cities is generally acknowledged, and most of these cities have installations of a more or less satisfactory and complete type. However, many of these places, during the depression years, have not provided for the extensions, maintenance and replacement necessary to furnish the protection essential to the welfare of the communities.

Advantage of this decline in fire-alarm service has been taken by those companies which provide systems to develop and refine the equipment. The most important steps have been: first, the introduction of functions permitting receipt of alarm even though a circuit may be grounded or open; second, the adoption of rectifiers, which permit operation direct, with batteries floating on the circuit as a reserve supply of current; and, third, the general standardization of equipment which will reduce cost and make fire-alarm services more generally available, especially to the smaller communities.

Advantage of these improvements has been taken by a few cities, as indicated in these photographs, but there are many other places in need of extension or addition to their fire-alarm systems, or of a complete new system. The installations shown were made by The Gamewell Company during the last year.

WATCH ROOM OF FIRE STATION AT CAMBRIDGE

A modern fire station set which can be placed on a shelf, table or desk. The signal is received here for the fire-alarm central office, being recorded simultaneously on the paper tape and also on the bell tapper directly in back of the tape. The fireman on watch sounds the signal on loud-sounding gongs on the apparatus floor and firemen's dormitory above



MODERN CONSTRUCTION AND AUTOMATIC TRANSMISSION AT WATERTOWN

Simplicity and ease of operation are outstanding features in the Watertown, Mass., fire-alarm headquarters. The advantages of the modern panel construction are evident. Additional panels for circuits, either for more boxes or for mutual aid communication with other towns, can be placed at slight expense

36,400 *Deaths in* 1935

MOTOR-VEHICLE or traffic deaths in 1935 totaled 36,400, compared with 1934's record of 36,000, according to the National Safety Council.

The only decrease was among school children up to 15 years of age. Motor-vehicle accidents to children have increased much less than those of adults since 1922, when safety education began on a national scale. October, November and December were the reddest months. Two-thirds of the accidents were in places under 10,000 population; more than 40% of the victims pedestrians.

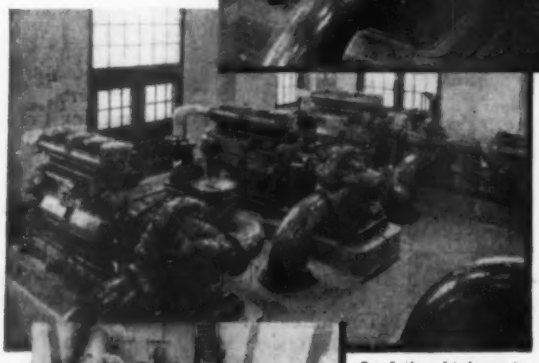
Thirteen states decreased traffic deaths 7 per cent or more: Delaware, Illinois, Kentucky, Massachusetts, Minnesota, Montana, North Dakota, Oregon, Rhode Island, Utah, Vermont, Wyoming, and Washington.

RACINE'S WATER SUPPLY *is* *MODERNIZED* *with* WORTHINGTON EQUIPMENT

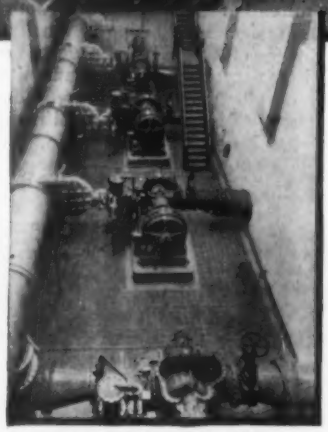
The new Michigan Boulevard Pumping Station and Filtration Plant. The original building is at left of picture. Walter A. Pierce, Manager, Racine Water Department, Alvord, Burdick and Howson, of Chicago, Consulting Engineers.

The 4 motor-driven high-service units, seen from rear of pumping station.

7 high-service units as seen from the gallery. At the side of this pump room is the pit for the low-service pumps as shown in bottom picture.



3 of the high-service units are shown here. The unit at rear has dual-drive, engine and motor.



4 low-service units in pit. Three are motor-driven, one has dual drive.

THIS new station is outstanding in efficient operation . . . with every provision to insure continuous service.

In it are ELEVEN WORTHINGTON CENTRIFUGAL PUMPS . . . four low-lift units with installed capacity of 60,000,000 g.p.d. against 50 feet t.d.h. and seven high-lift units with installed capacity of 66,000,000 g.p.d. against 200 feet t.d.h.

. . . Another noteworthy example of confidence in Worthington equipment.

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A-30159

MARCH, 1936

Vol. LI, No. 3

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Meter Reading, Billing and Collecting Simplified

By J. C. HOUSTON, JR.
Office Manager, Western New York Water Company, Buffalo, N. Y.

THE Western New York Water Co., supplying the suburban area adjacent to the city of Buffalo, is privately owned. Its system surrounds the city on three sides, and comprises approximately 290 miles of mains, serving a population of about 120,000 in the villages of Sloan, Depew, Lancaster, Williamsville, Blasdell, and Kenmore; the city of Lackawanna; and the towns of Hamburg, Orchard Park, West Seneca, Cheektowaga, Alden, Lancaster, Amherst, Clarence and Tonawanda. Water is taken from Lake Erie at a point just south of the city of Lackawanna in the unincorporated hamlet of Woodlawn, where it is filtered and supplied to the southern half of the territory from the main pumping station. In order to efficiently serve the rest of the territory, two main booster stations are located at strategic points, and there are three smaller auxiliary boosters to take care of peak loads.

The system is 100 per cent metered, and, of the 12,500 active accounts, all but 100 are either domestic or small commercial consumers. This large group of small consumers form the basis of this discussion, because their problems are general, whereas those in the other groups are individual and special, most of them being large industrial corporations, or municipalities which buy water wholesale and distribute it themselves. These accounts are billed every month, but the majority of our consumers are on a quarterly billing basis.

The Contract Envelope File

The day that a customer signs an application for a new service, we place the application in a heavy fiber envelope 10 inches long and 8 deep. An account, or route, number is printed on it, and from then on, every important record in connection with that account is placed in it. As a result, if the curb box is buried and we wish to locate it twenty years from now, we can do so by locating the original tapping order in the envelope. We thus have in one place, easy to reach, every permanent record of value, but we do not clutter it up with unimportant papers of only current use, such as turn-ons, temporary turn-offs, meter changes, complaint inspections and the like. These are recorded on the meter-reading sheet, then kept in their respective files in route-number order until their usefulness has been outlived, after which they are destroyed. This is practical in only small or medium-sized companies because it might be cumbersome from the standpoint of filing space required for it in a very large company's office.

Quarterly Billing

From the standpoint of both company and consumer,

Data on Forms Shown on Pages 56 and 57

A—*Application for Water Service.*—On a new service, this must be signed by the property owner, who pays $14.50 in advance at the time of signing it. This covers the cost of the labor and materials furnished by the company in making a tap and setting a meter. Size, 8 5/16 x 7 3/16 inches.

B—*Work Order.*—This is an old form which will be revised when the present supply is exhausted. It is now used as a tapping order and serves well enough for this purpose. A duplicate is kept in the office until the tapper returns the original, and then the duplicate is destroyed. The typewritten part of the information is furnished by the office, and the written part by the tapper. Size, 8½ x 10⅞ inches.

B1—*The reverse of the Work Order,* showing the sketch made in the field.

C—*Ledger Card.*—Our first cash entry on this is always the tapping fee. Note also that when a bill is unpaid at the end of a period, the next billing includes the arrears, so that the amount shown for each billing is a cumulative total. Our minimum charge is billed in advance. Size, 7 x 10⅝ inches.

D—*Contract Envelope.*—A filing place for all important papers in connection with an account. Size, 9¾ x 8 inches.

E—*Meter Reading Sheet.*—Under the heading "Location" is a square of space. The bottom line of this represents the front wall of the building, and the meter reader marks a dot for the meter location in the cellar, and records any other pertinent information. Thus, in this case, the meter is located along the front wall of the cellar, on the meter reader's right as he faces the street when in the cellar. He also is warned, by somone's previous experience, to beware of the dog. The column at the extreme right is for the clerk in the office, who subtracts all readings and compares the consumption with previous usage. Just to the left of this column is one used by the meter readers to check the consumption themselves and make sure they have not mis-read the meter. To the left again of this, is a column in which th excess above the minimum is recorded to aid the billing clerk in setting up bills, because our charge for water used in excess of the minimum is 5 cents less per 1,000 gallons. Size, 6 x 9½ inches.

F—*Address Index Card.*—Size, 3 x 5 inches.

G and G1—*Meter History Cards.*—A serial number is stamped on every new meter at our shop, and it is this number we use in referring to meters rather than the manufacturer's shop number. Size, 3 x 5 inches.

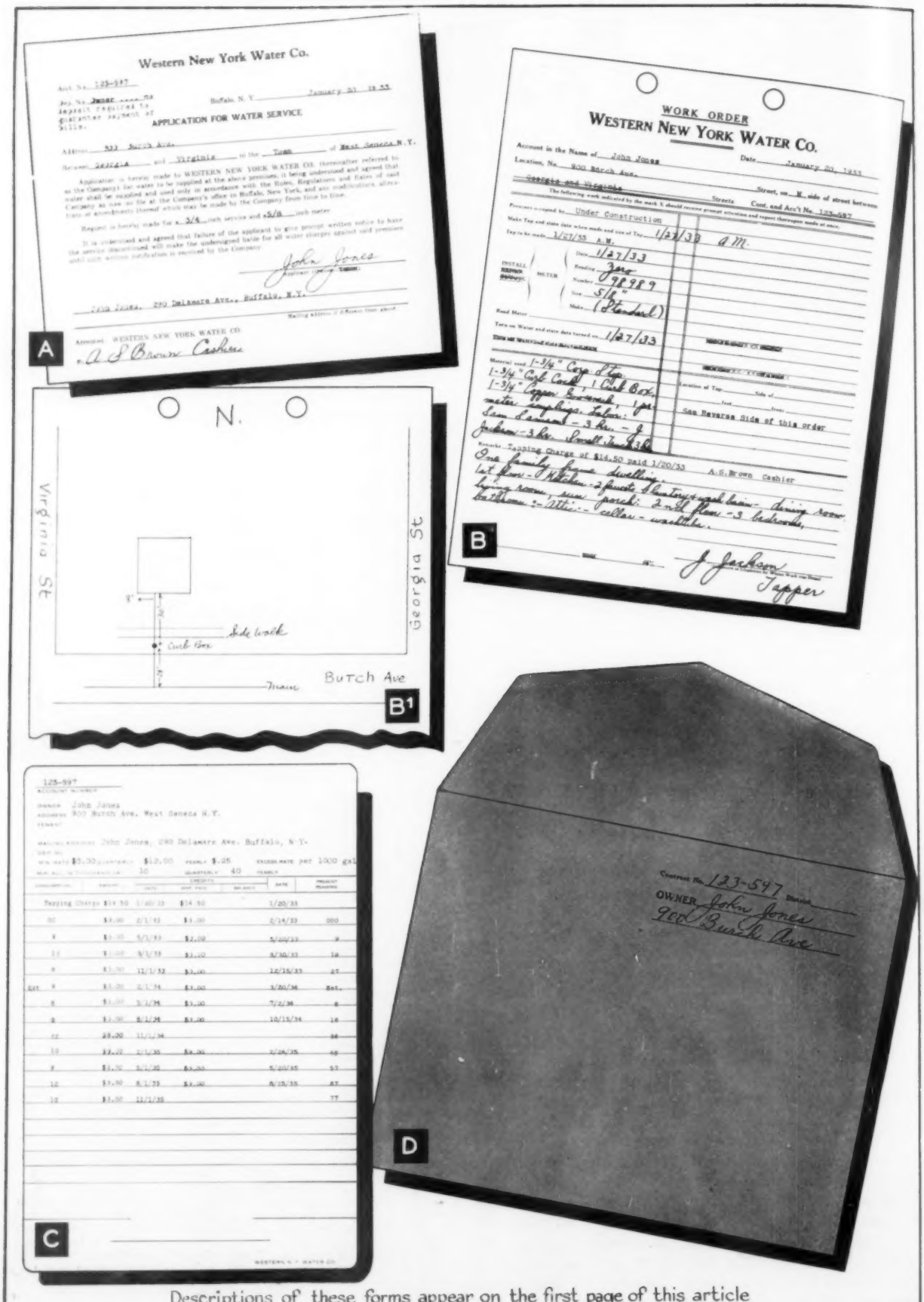
H—*Meter Change Order.*—Size, 7⅞ x 5½ inches.

I—*Inspection Form.* See notation on meter reading sheet, referring to this, under Remarks column, opposite 10/29/35 reading of meter. Size, 6⅛ x 4 inches.

J—*Water Bill.*—The address is printed on here with an Addressograph machine. The account number is placed on the Addressograph plate in a position to print on the cashier's stub. When the stub is cut off, the account number can be found on the customer's receipt by looking on the reverse or mailing address side of the bill. Size, 5 7/16 x 3¾ inches.

K and K1—*First Delinquent Notice.*—Mailed approximately 30 days after the due date of bill, size, 6¼ x 3½ inches, and the window envelope in which the bill is mailed, size, 6½ x 3⅝ inches.

L and L1—*Final Delinquent Notice.*—Size, 8½ x 11 inches. Window envelope for mailing, size, 8⅞ x 3⅝ inches.


Western New York Water Co.
APPLICATION FOR WATER SERVICE
Buffalo, N. Y. January 20 1933
933 North Ave.
Virginia
Town
West Seneca N.Y.
WESTERN NEW YORK WATER CO.
John Jones
A. S. Brown Cashier
A
WORK ORDER
WESTERN NEW YORK WATER CO.
Account in the Name of John Jones
Date January 20, 1933
Location, No. 900 Burch Ave.
Georgia and Virginia
Streets
Street, on W. side of street between
Cont. and Acc't No. 123-597
Under Construction
Make Tap and state date when made and size of Tap 1/23/33 a.m.
Tap to be made 1/23/33 A.M.
INSTALL METER
Date 1/27/33
Reading Zero
Number 98989
Size 5/8"
Make (Standard)
Read Meter
Turn on Water and state date turned on 1/27/33
Material used 1-3/4" Corp. stop
1-3/4" Curb Cock, 1 Curb Box
1-3/4" Copper Goosneck, 1 pr.
meter couplings, Labor:
Seen Leonard - 3 Hrs. - J
Jackson - 3 Hrs. - Small Tools
See Reverse Side of this order
Remarks Tapping Charge of $14.50 paid 1/20/33 A.S. Brown Cashier
One family frame dwelling
1st floor - kitchen - 2 private chimneys - coal burner - dining room
living room, open porch; 2nd floor - 3 bedrooms,
bathroom - attic - cellar - washtubs.
J Jackson
Tapper
B
N.
Virginia St
Georgia St
8'
2
Side Walk
Curb Box
7
Main
Butch Ave
B1
123-597
ACCOUNT NUMBER
Owner John Jones
Address 900 Burch Ave, West Seneca N.Y.
Tenant
Mailing Address John Jones, 290 Delaware Ave. Buffalo, N.Y.
Min. Rate $3.00 QUARTERLY $12.00 YEARLY $.25 EXCESS RATE per 1000 gal.
Min. Allowance 10 QUARTERLY 40 YEARLY
CHARGES CREDITS BALANCE DATE PRESENT READING
Tapping Charge $14.50 1/20/33 $14.50 1/20/33
00 $3.00 2/1/33 $3.00 2/14/33 000
8 $3.00 5/1/33 $3.00 5/20/33 8
11 $3.00 8/1/33 $3.00 8/30/33 16
8 $3.00 11/1/33 $3.00 12/15/33 25
Est 8 $3.00 2/1/34 $3.00 3/20/34 Est.
8 $3.00 5/1/34 $3.00 7/2/34 8
8 $3.00 8/1/34 $3.00 10/15/34 16
12 $9.00 11/1/34 66
10 $3.00 2/1/35 $3.00 2/28/35 40
8 $3.00 5/1/35 $3.00 5/20/35 57
12 $3.00 8/1/35 $3.00 8/15/35 67
12 $3.00 11/1/35 77
C
Contract No. 123-547 District
OWNER John Jones
900 Burch Ave
D

Descriptions of these forms appear on the first page of this article

Descriptions of these forms appear on the first page of this article

we believe that bills rendered once every three months are most satisfactory. A shorter billing period would materially increase the company's operating costs without bringing proportional benefits to the customer; and a longer period not only ties up revenue, but often means that a consumer is presented with a bill for much more than he cares to pay at one time. Our average quarterly bill is about equal in amount to the average monthly bill for other utility services.

To facilitate all routine work in connection with these accounts, we have divided our territory into three districts known as 1, 2 and 3. Each is a compact, geographical unit, and all are fairly equal in area, number of consumers and total revenue produced. District 1 is read and billed in January, District 2 in February, District 3 in March, and then the cycle begins again. We thus have an even distribution of work, inside and out, every month of the year, and are also able to maintain a fairly steady flow of cash, a decided asset to any business.

Accounts Filed by Routes

Continuing the division of our accounts into units easy to handle, each district has been broken down into 25 routes, so-called because a meter reader can start at the beginning of any book and find the sheets all arranged in the order in which they are to be read. This order is the one that will save him the most steps, because it has been carefully worked out from maps and from actual experience in the field. Each route consists of approximately 160 accounts, and the sheets are in loose-leaf form, but bound by durable bakelite and metal covers. In using this heavy binder, our chief aim was the protection and preservation of the reading sheets, but, judging by unofficial reports, they seem to have a quieting effect on dogs that think that meter readers make good meals.

The sheets in each book are numbered to allow the addition of new accounts in their proper places, and all our office records (with the exception of the meter history cards) are filed in route-number order; we thus eliminate all necessity for cross-indexing and have instead a very simple but efficient filing system. The key to this system is a geographical index composed of 3 x 5-inch white cards grouped alphabetically by streets and numerically by house numbers. At the top of these cards is the address, and immediately below are shown the route number and the number of the meter supplying the property. On certain streets, not all houses have house numbers; the cards for those which have numbers are arranged in numerical order, and for those which have none we write the customer's name and file the cards alphabetically behind those bearing house numbers. This file, incidentally, is a great time saver, and any office, no matter what the size, would find it worth while installing. I have seen it opposed by old-time bookkeepers and cashiers who gave various excuses for not wanting it installed, but after it had been made up and placed in service they could not understand how they ever got along without it.

Meter Reading and Checking

The meter-reading books, except for a few days each quarter, are kept in the office, for they constitute the most important record that the company has of any consumer. Although no cash transactions are kept in them, all other pertinent items, such as turn-ons, turn-offs, meter changes, inspections of all kinds, and various miscellaneous bits of information, are indicated on the individual sheets. After each route has been read, it is carefully checked at the office, and each consumption compared with previous usage at the property. If it is exceptionally high or low, an order is issued to re-read the meter. If the reading is found to be correct but high, a thorough check of the plumbing is made by the inspector, who makes a verbal report to the occupants of the building, and a written report to the office. This second check reading not only aids the customer in preventing further wastage of water if our inspector finds there are leaks in the plumbing, but also aids materially in handling consumers' complaints because they have been anticipated before they came in. People are usually satisfied if you can give them a reasonable explanation for a high bill. If there is none, and the customer is dissatisfied, a test of the meter is made in service. This is done without charge, and for all practical purposes is accurate enough, but if a more complete test is desired, we will remove the meter to our shop, where, in the complainants' presence, we will test it at various rates of flow. If it is found to be in error, an adjustment is made in accordance with the Public Service Commission regulation governing such cases, but if it is found to be correct, a charge of $2 is made for the service. This does not cover the cost incurred by the company, but it prevents the needless removal of meters and makes the customer look around and usually find the real reason for his high bills. To aid in this, the company is always willing to send out a qualified inspector.

In cases where the meter reader finds on a re-call that the consumption is low, he turns on a small stream of water and then checks to see if the meter is registering. If it is not, he so indicates on the sheet. Otherwise, he questions the occupants as to vacancies during the past quarter and tries to determine the cause for the drop in consumption. If there seems to be no reason for it, a report is made to the office, and the meter is ordered out of service and taken to the shop, where it is tested and any worn parts replaced by new ones. This is in addition to the periodic checking which we do in compliance with the Public Service Commission rules and regulations governing the testing of water meters. These rules, however, did not differ greatly from our established practice before they became effective, because we know that the meters are our cash registers, and that we cannot be too careful in our maintenance of them. Some of our customers, I am afraid, think that we maintain them entirely too well, but I will say that I have never taken anyone out to our shop to witness a test of his meter that he did not come away satisfied that he was receiving a fair deal, and impressed by the care that we take of all meters.

Billing

All quarterly bills are rendered on regular United States Government post-card forms. The actual billing is done with a standard bookkeeping machine, which also is used for posting accounts when payments are made. Our ledgers are cards, 7 x 11 inches, unbound, and filed in trays which are kept on metal carts that can be easily wheeled about the office. Each card has room enough to show the bills rendered and the payments made on one account for a five-year period. This has distinct advantages over the stub billing form, especially in small or medium-sized companies. These advantages seem too obvious to enumerate, but where speed in billing is the essen-

tial thing and outweighs other considerations, then stub billing is the only method to use.

When one of our districts has just been billed, all the ledger cards are placed in the forepart of the trays in a section marked "Unpaid." As the payments are made and posted, these cards are removed and placed at the rear in a part marked "Paid." This enables us at any time to sum up on an adding machine the amount of our outstanding accounts receivable, and greatly aids in striking a balance at the end of the month, as well as speeding up the typing of delinquent notices, because the clerk is not forced to handle paid accounts when all she is interested in, are those that remain unpaid.

Collections

All our bills are rendered on the first of the month, and are due for payment no later than the fifteenth of the same month. We have no discount for prompt payment, but for our consumers' convenience we have authorized neighborhood collectors who accept money up to the due date, but no later. Consequently, the majority of our bills are paid before this time, because our main office in Buffalo is a considerable distance from most of the territory served, and people prefer traveling a few blocks rather than several miles or spending an extra amount for a money order and postage, because very few of them have the luxury of a checking account.

In order to describe our collection methods, it will perhaps be clearer to choose just one district and follow it through chronologically, keeping in mind that the same things are being done in the other districts in successive months.

Taking District 1 as an example, we render our bills on the first business day of the month, and they are due for payment the fifteenth. By the thirtieth, practically 65 per cent of them have been paid. About the middle of the second month, or thirty days after the due date, our first delinquent notices are mailed out in this territory. These are a reminder that the account remains unpaid and that we should like to have it settled without being forced to discontinue service. This printed form is designed to fit a window envelope and requires only a minimum of work by the clerk in typing it. Payments during this second month amount to about 12½ per cent of the original billing. At the beginning of the third month, a collector is sent into the territory with a list of the unpaid accounts. He makes a house-to-house canvass of all delinquent consumers, keeping in touch with the main office, and trying to collect these accounts without discontinuing service, a step which we do not take at this time. He has a task that I do not envy, for he is apt to be blamed for all the ills, real and imaginary, that have befallen a family in their lifetime. But the man whom we have doing this work manages to keep his good nature and does, I believe, a pretty good job. During this final month of the quarter we receive an additional 12½ per cent of the total billing, leaving about 10 per cent unpaid at the end of the period.

Final Handling of Delinquents

By this time, the district has been billed again, but before our statements are sent out, a list is made of all accounts which show any arrears and total, including the current bill, $9 or more. These bills are then mailed out with the rest, but if they are not paid by the due date, a final delinquent notice is promptly sent by registered mail in compliance with the New York State Laws of 1934, Chapter 829, preparatory to discontinuing service for non-payment. This amendment requires water-works corporations to send a registered notice to its customers fifteen days before shutting off the water for the non-payment of a bill. The law at first required that, in addition to this, a notice must be posted in a conspicuous place on the premises, but in 1935 another amendment was passed making it unnecessary to post one- and two-family houses; it still must be done for premises occupied by more than two families.

If the account remains unpaid at the end of the period mentioned, service is discontinued until the bill is paid in full, plus a $2 re-installation fee to cover the cost of the efforts made to collect the account. It is thus over four months from the oldest item on a bill before we refuse a customer further credit. This may seem like a long time, but the state law previously mentioned has slowed up our collection routine because the time, labor and money involved in applying it to all delinquent accounts, instead of limiting it as we have, would involve spending more money than we now lose to the deadbeats who manage to keep one jump in front of the man with the turn-off key.

When we criticize this piece of legislation, we do not do so because we wish to go out and shut off the water of every consumer who does not pay his bill on the day it is due. As a matter of fact, we turned the water off for non-payment in fewer cases before this law was passed than since, because we now have a higher number of large unpaid bills. People do not like to have their service discontinued, and we do not like to be forced to do it, but formerly we could threaten to do so, and mean it, and now our threat is hollow unless it comes in a registered letter, and the people who are habitually delinquent know it. The legislation is actually beneficial to no one but those people who do not want to pay bills until they have exhausted every means of escaping them. In those deserving cases where people are just up against it, we are, and always have been, willing to meet them more than half-way. We have never made it a practice to shut off water indiscriminately, and every case is carefully checked and the customer given every opportunity to come into the office and talk it over with us before any final action is taken. We are in constant touch with the Welfare Department and are thus able to be lenient where necessary, and apply pressure when that seems to be the only thing that will serve. It is a difficult problem at best and one that can never be solved by arbitrary or any other kind of legislation.

ACKNOWLEDGMENT.—From a paper presented before the New York Section, American Water Works Association.

VOTERS APPROVE PWA PROJECTS

PWA projects received direct popular approval from the electorate in 83 per cent of the proposals submitted at the polls. This was revealed last month by a survey which is, in effect, a nation-wide referendum concerning PWA projects, embracing more than 10,000,000 actually polled ballots of regularly registered voters. No such survey has ever been made heretofore.

Voters assessed themselves, as local taxpayers, in 2,166 out of 2,613 elections for local contribution of the greater part of the funds required to secure the benefits PWA offers. In 447 elections, voters disapproved the projects which PWA then dropped.

PWA projects carried all elections in six states. Some elections were unanimous.

Voters approved proposals for PWA permanent improvements requiring local contributions of $213,621,000, which approximated four times the proposed local contributions defeated, $54,385,000.

Drawing on Our Reservoir of Wealth

By TAGE P. SYLVAN

"The great reservoir of wealth in this country is the unemployed. By hiring the unemployed to make useful goods and services, we can get that wealth for all of our people."—DAVID CUSHMAN COYLE.*

WHO can assure jobs to the millions of employable men and women in this country now on the dole or work relief, and pay them wages adequate to buy the goods and services which others of us want to sell —and must sell before we can re-employ our idle workers? How can we draw on the great reservoir of wealth represented by the productive ability of our unemployed?

The Agency

One agency alone is able to give such assurance. It is the agency which represents all of us collectively—the Federal Government. "Only the Government has power to spend money which it does not yet have and to force its revenues up to the point where it can get the money back. Only the Government can possibly dare to spend enough to get us out of the depression."†

The Means

The Federal Government can restore and maintain nation-wide prosperity by continuously financing enough useful, non-competitive public works and services, completed within fixed limits of time, to take care of all employables who need jobs. The work should be done in the main by private concerns using modern machinery, under contracts awarded to responsible bidders only.

If we can, within a comparatively short time, assure steady work at decent wages for, say, forty per cent of our jobless workers, the demand on private industry for goods and materials to be used on such public works and services would soon put another thirty or forty per cent back to work in the mills, factories, mines, forests and service agencies of the country. And it seems reasonable to believe that the remaining twenty or thirty per cent would soon be needed in private employment to take care of the requirements not only of the millions given jobs as the result of a public works program, but also of their own needs and the increased demands of the rest of us with the rapidly mounting prosperity which would result.

The Cost

The billions spent in the public works program would in general be exchanged for goods and services which would not otherwise be produced or sold. Stating it another way, we are now doing a business representing an income to the American people of some 50 billion dollars a year. This under-normal volume of activities must carry all the ordinary costs of government and the added current relief costs necessary to care for our millions of unemployed and their families. By assuring useful, self-respecting work at decent wages, as here suggested, purchasing power and confidence would be restored, and our business should quickly increase to more than 100 billion dollars a year. The national tax levied against this increase would be but a small part of the increase in business. There would be no more need of paying a dole to employables. Morale would be raised. Unemployment insurance would be unnecessary. The fear complex which still grips so many of our people would vanish, and this would aid in releasing our pent-up purchasing power.

"Indicative of the ease with which the taxes for a comprehensive and permanent program of public spending could be provided," as the Editor of THE AMERICAN CITY has pointed out on more than one occasion, "is the fact that our 'alarmingly gigantic' Federal debt is, in net amount, less than the drop in the national income in a single year of the depression, as compared with the previous maximum. Indeed, if the total income produced in the United States in 1933, instead of being $39.8 billion, had been restored to the 1929 total of $83 billion, the wealth thus regained *in one year* would have been ample, if properly divided, to retire not only the national debt, but all state and local governmental indebtedness as well."

Wages

Wages for workers on public works projects must be high enough to enable them to buy more than the mere necessities of life. Otherwise, the demand on private industry and the demand for personal services will not be large enough to enable employers to take on the maximum number of workers and to secure an adequate market for their products.

Low wages or a dole, and "made work" which has no permanent value and which precludes adequate expenditures for materials and supplies, have the effect only of lowering morale and prolonging the depression throughout the country.

National and Local Responsibility

We are now beginning to realize that every state is vitally affected by unemployment in other states. Each state is also affected by the way the other states handle their unemployment problems. These problems cannot be controlled by a single state, because they are the result of nation-wide influences. Michigan, for example, cannot increase the existing purchasing power of the country in order to expand the market of the automobile industry, even though Detroit is the automobile center of the country. Pittsburgh is the center of the coal-mining and steel industries, but Pennsylvania cannot stimulate construction wherever coal and steel are used. The Federal Government, which has the power to do these things, must be the coordinating agency, working, with a minimum of red tape, through the existing municipal, county and state

* In "Brass Tacks," pp. 36-7. (National Home Library Foundation, Washington, D. C., 1935.)

† Coyle, *op. cit.*, *p.* 78.

governments, so that the public works programs in all the states will be started quickly and all local units will observe the same principles of *adequate wages, expended for useful, non-competitive projects and services, to be completed within fixed limits of time, and in the main by private contractors.*

The Federal Government should assume the responsibility for granting funds to the local governments for these projects, because it alone can equitably levy taxes on the increased wealth produced by restored prosperity. And, since national taxes levied for public works affect all the people, directly or indirectly, grants to the local governments must be made on a per capita basis. Such per capita financing would spread the new work to every state, county, city, town and school district, so that there should be little trouble for all to find work. There might be a stipulation that the Federal grants must be expended in addition to, and not as a partial substitute for, the average local budget of the last three years.

Planning

The execution of local projects should be subject to the check of the local planning boards, where such exist. Where official planning agencies do not exist, it might be well to appoint local boards of representative citizens, whose recommendations as to the types and locations of projects could be overruled by the local governing body on, say, a two-thirds vote.

Local agencies should start at once to plan out a program of public works for their communities, but they should give primary consideration to work which can be started almost immediately. Speed in getting people to work and projects spread throughout the country are vital in an undertaking of this magnitude.

High-Grade Contractors

Reputable contractors should be invited to bid on the various projects. The use of efficient contractors will assure the proper direction and supervision of the workers, maintain high standards of workmanship and eliminate the waste too often present in public works supervised by persons who have no financial interest in the project.

Workers hired and paid by a contractor demand fair treatment, but they accept the requirement that they deliver to the contractor a full measure of work, both as to time and quality, as a matter of course. On "made work" jobs workers resent supervision, to the serious impairment of their morale, and in many cases their work is indifferent and poor. They consider that the "boss" has not the same interest in the work that a contractor would have, and consequently they see little need for speed or quality of work. If urged not to loaf, they are likely to reply, "What's it to you? The slower we work, the longer we'll have work, and that goes for you too, Boss."

Regulating the Supply of and Demand for Workers

As soon as a large-scale program of public works gets under way and the demand for workers, given decent pay and working conditions, becomes effective, we can forget all about unemployment insurance, regimentation of groups of citizens, Government invasion of industry, the need for a substitute NRA and AAA, and other attempts to defeat the operation of the law of supply and demand. If we then made generous provision for pensioning the incapacitated and aged, our consuming power as a nation would constantly tend towards the maximum.

This plan should stimulate private industry and the service agencies to give or restore private employment to all able-bodied workers (excepting, of course, those needed in the regular service of government, Federal, state and local). This will be done not by any form of subsidy to private industry, but by the mere assurance of a market for the products of our farms, factories and service agencies, including the services of those in the professions and in artistic, cultural and recreational activities.

The whole idea is simply the application of the law of supply and demand to the workers of the nation, instead of to the products of their labor. For, since labor enters into everything we have and do, if we can keep the demand for labor substantially in pace with the supply of labor, we can allow the needs and desires of our people to regulate the supply of all products, goods and services. When other work is constantly available, the incentive to produce unmarketable surpluses in any given line disappears.

The Federal Government Can Do It

If the Federal Government will always stand ready to finance useful, non-competitive public works and services by ample per capita grants to every state and local government, it will soon be possible to relieve and eventually largely to prevent unemployment by coordinating the demand for workers throughout the country with the available supply, and thus provide a steady, profitable market for private industry and services.

24,000 PWA Projects Require $2,000,000,000 of Materials

MORE than 60 per cent of the public works money thus far spent has gone for material manufacture that has blanketed the country with indirect and industrial employment far exceeding the direct employment given on construction sites where the materials were used, PWA statisticans have reported to Public Works Administrator Harold L. Ickes.

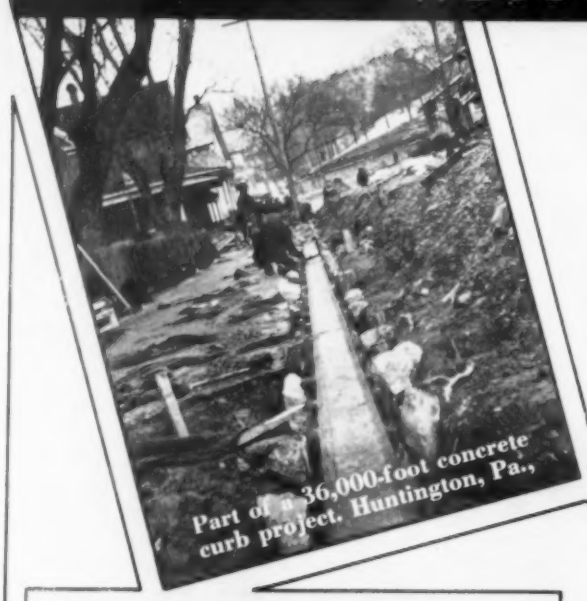
In some instances the indirect and industrial employment provided by material manufacture and transportation has been several times greater than the employment given by putting the materials in place on construction sites. **Approximately** $2,000,000,000 worth of stone, steel, cement, lumber and hundreds of other types of building materials will be required to complete the 24,000 projects now on the PWA books. Of this estimated total, approximately $1,223,500,000 had been spent for materials up to February 1.

These expenditures have been a major factor in the revival of the heavy industries, where unemployment was greater than anywhere else during the depression. Manufacture of the materials required to complete unfinished projects will help to sustain the heavy industries at their present high level of operation.

"The theory of public financing of construction work as a means of national industrial recovery in times of depression," says the PWA statement, "is that by providing a market for the products of the heavy industries their idle employees will be called back to work and their purchasing power will be restored.

"Direct employment on construction sites is limited, with few exceptions, to men living in the vicinity of each of the 24,000 PWA projects and to limited classes of construction workers. . . . But the materials used on each project originate, almost without exception, in many distant localities, and it is men working in industries in those localities who benefit from indirect unemployment."

WPA Projects



Part of a 36,000-foot concrete curb project, Huntington, Pa.,

Some of the 900 workers who placed 64 miles of curb, Decatur, Ill.

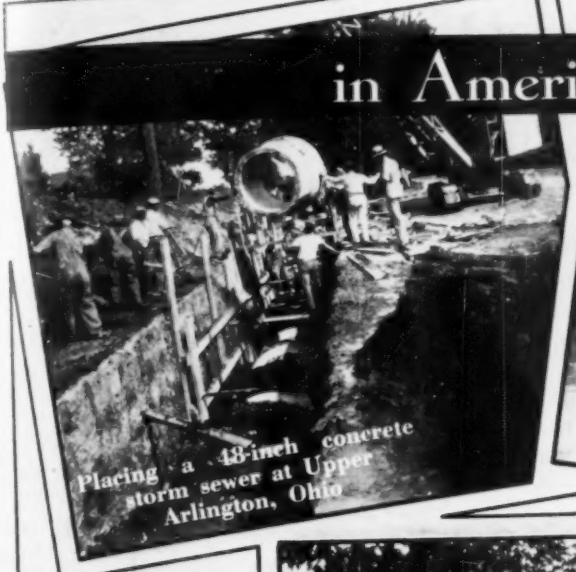
Placing section of 60-inch concrete sewer pipe on 3½-mile project, West Hempstead, L. I., N. Y.

Concrete sidewalk improvements, Monmouth, Ill.

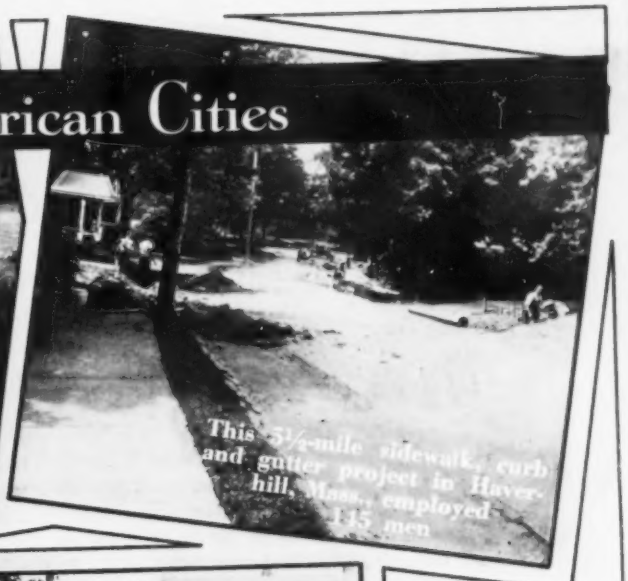
Concrete tennis courts, Glencoe, Ill.

Building ½ mile of concrete pavement, Tahlequah, Okla.

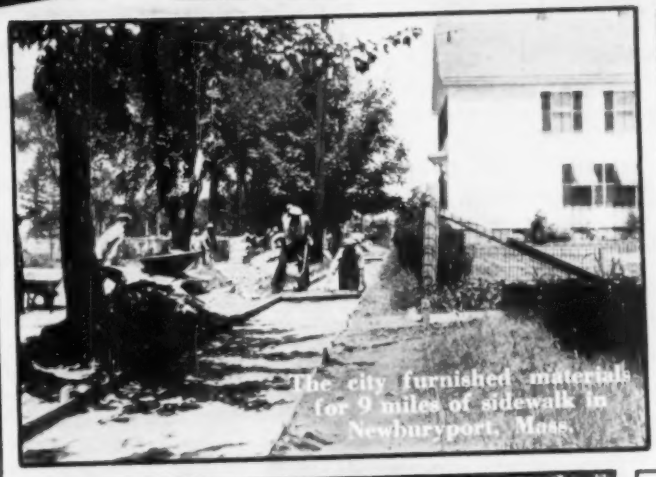
in American Cities



Placing a 48-inch concrete storm sewer at Upper Arlington, Ohio



This 5½-mile sidewalk, curb and gutter project in Haverhill, Mass., employed 145 men



The city furnished materials for 9 miles of sidewalk in Newburyport, Mass.

Relief workers cleaning up after a sidewalk project in Yonkers, N. Y.

New concrete handball courts at Hartford, Conn.

A concrete sea-wall recently completed at Milford, Conn.

The Sanitation Problems of New York City

By COLONEL THOMAS W. HAMMOND
Commissioner, Department of Sanitation

Street Cleaning—Refuse Removal—Sewage Treatment—Snow Removal

ALTHOUGH the problems of the largest city in North America may not be exactly those of the majority of our cities, this brief discussion of organization and methods is presented in the hope that it will be of assistance to other municipalities.

A Gigantic Task

There are 3,240 miles of paved streets in Greater New York, which are littered and otherwise dirtied every day by people.

An average of 5,000 truck loads of ashes, garbage and rubbish accumulate every day throughout the city. Over 800 animals die in the city every day.

Approximately one billion gallons of sewage is discharged every 24 hours from the city's sewerage system.

A varying amount of snow falls on the city's streets every year. A 1-inch snowfall necessitates the removal of three million cubic yards.

About 4,000 automobiles are abandoned and left on the city's streets each year.

The job of the Department of Sanitation is to clean these 3,000 miles of paved streets, to collect and dispose of all the garbage, rubbish, ashes and dead animals; to treat the sewage; and to keep the streets of the city clear and open to traffic.

To do this job the city provides the Department with about 14,000 people; a budget of some 28 million dollars; a motor fleet of about 3,000 vehicles; a river fleet of 71 scows, tugs and other boats; and, among other things, 54 garages, 241 section stations, 4 machine shops, 22 incinerators, and 15 sewage screening plants.

New Organization

The new organization of the Department consists of a Division of Engineering; of Street Cleaning and Waste Collection; of Administration; of Trials and Legal Affairs; of Finance and Supply; of Inspection; a sanitary education service, and a welfare and recreational service. In charge of these eight divisions and services are five Deputy Commissioners, an Assistant to the Commissioner, a Director of Sanitary Education, and a Secretary of the Department, who, together with the Commissioner, constitute the nine officials of the Department who are exempt from civil service examinations. All the remaining 14,000 members of the Department are appointed in accordance with the laws governing civil service examinations.

The Division of Engineering is charged with the final disposal of ashes, garbage, rubbish and dead animals; the treatment of sewage; the design and construction of new plants and buildings; and the maintenance of all plants and buildings in the Department.

The Division of Street Cleaning and Waste Collection is charged with cleaning the streets and removing snow from them; with collecting the ashes, garbage, rubbish and dead animals and delivering them to points of final disposition; and with the actual operation of all landfills except Riker's Island.

The Division of Administration is charged with departmental administration, personnel, the medical service and accident prevention.

The Division of Trials and Legal Affairs is charged with conducting the trials of members of the Department who violate departmental rules and regulations, and with legal affairs pertaining to the Department.

The Division of Finance and Supply is charged with budgetary, financial and supply problems.

The Inspection Division is charged with the operation of the complaint bureau, with all special investigations and inspections, with the enforcement of the Sanitary Code so far as that function pertains to the Department, and with special studies designed to improve the administrative and operating methods of the Department.

The Director of Sanitary Education is charged with carrying out the Department's program of sanitary education in the schools, at the playgrounds, and with Parents' and Teachers' Associations.

The Secretary of the Department, in addition to the departmental secretarial duties, is charged with the welfare and recreational activities of the Department.

Some Costs and Economies

The budget for the Sanitation Department for 1936 is $28,112,825.70, while in 1932 it was $38,979,362.42, a difference of nearly 11 million dollars. The cost per capita for street cleaning, collection and disposal service, which in 1934 was $3.53, was $5.42 in 1932.

The cost of removing snow during the winter of 1933-34 was 44.3 cents a cubic yard, while the cost for the winter of 1934-35 was 38.5 cents. This difference, if applied to the amount of snow removed in 1933-34, would have reduced the cost $954,755.

The cost of disposing of dead animals in 1933, and for each of several years before that, was $167,000. The cost in 1935 was less than $50,000, and it is estimated that it will be about $10,000 in 1936.

The cost of disposal of ashes, garbage and rubbish in

Brooklyn, now under city operation, is about $2,500,000 less than it was in 1932, when it was let to a private contractor.

The cost of collection of garbage, rubbish and ashes in Richmond for 1933 was $2.17 per cubic yard, while the cost during 1935 has been $1.19 a cubic yard.

By completing the alterations to two incinerators in Manhattan and by redesigning and altering three in Brooklyn and two in Queens, the burning capacity has been increased by 41 per cent; and in the case of the Manhattan incinerators, the cost of operations has been reduced about $200,000 a year.

Other Improvements

The working load capacity of 1,000 collection trucks was increased by 5 yards, and the system of loading was changed to a relay system. By this method each loading crew, instead of waiting while its loaded truck goes to the dump to discharge its load, has a truck present at all times available for loading. The results are: fewer trucks on the streets; more frequent collection service for the people; and the release from loading of several hundred men who are now engaged in sweeping the streets. This change was one of the main factors in getting the drivers and sweepers on an 8-hour day basis. About 800 sweepers and drivers have been relieved from assignments to unnecessary and generally loafing jobs and put to work driving or loading collection trucks.

New Truck Equipment

The Department of Sanitation is re-equipping with new modern motor truck equipment. The new type collection truck is as effective as any of the two trucks of the old type. This truck is a great labor-saver in loading. Each time the load accumulates to the sills of the loading doors the body is tipped up and the load slides to the rear. The body is again lowered and loading is continued. This sequence of operation is continued until the body is full. The result is a compact and bigger load than was possible by any other previous method. These bodies are also of greater capacity than any previous trucks and they are constructed of light-weight corrosion-resisting materials, to save weight and increase their endurance.

The new flusher plow is designed for both summer and winter use. In the summer it is a very effective street flusher, with the unusual capacity of 2,500 gallons of water for extended flushing operations without stopping to refill. This method of cleaning the streets has been found very effective and much more sanitary than the other method of sweeping with brooms. In the winter this unit is equipped with a large snow-plow and is very effective in plowing operations.

The new type crosswalk plow is now equipped with pneumatic tires in place of solid tires as in the past, and with a more modern cab for the better comfort of the drivers and to protect them against carbon-monoxide poisoning. This type of plow is used for clearing the crosswalks and piling and sewering snow.

The new sweeper is designed to collect the sweepings in a large hopper within the unit so that this material is not pushed to one side and spread about in the air as was the case in the old type sweeping machines.

The snow-plow wrecker is equipped with a large front "V" plow and powerful center scraper plow. This truck drives through all four wheels to assist heavy plowing operations. It is approximately 40 feet long and 11 feet high and equipped with hoists and superstructure to easily bring into the shops any trucks in need of repair.

All this new and modern equipment is designed for quieter operation and also with the end in view of having the largest capacity per driver consistent with efficient operation.

Toledo Completes Program for Business Administration Methods in Government

By W. F. STALDER
Toledo Associates

IN Toledo, where for five consecutive years the city operated at a deficit, public-spirited citizens started a move last year to solve its financial problems, to set up a more efficient and economical system of good government and to operate it on a businesslike basis. Unlike the usual so-called "reform movements" which flare up, flicker, then fade out, the carefully planned Toledo program evolved into concerted and relentless action and is getting results.

The first objective was gained by discarding the old mayor-council plan of municipal government and adopting the more modern city manager form. As the second step, the citizens elected a new nine-man city council considered to be the most able and efficient ever to hold office in that city. The composite qualifications and experience of the new Toledo city council taken as a body is that of an industrial executive, a lawyer, a consulting engineer, a marine contractor, a securities salesman, a retail druggist, a shop foreman, a newspaper printer and a sign company owner. As a public servant it has experience as a municipal judge, a state legislator, a city mayor, a vice-mayor, a city service director, a civil service commissioner and a city councilman. Such are the extensive qualifications and experience of the new Toledo council.

The third important objective in the Toledo program was reached when Toledo selected as its City Manager, John North Edy, a man of long experience in city management and an expert in financial affairs. Mr. Edy has never held a political office, yet he has been in public service for over twenty years, serving two counties in different states, five cities in different states and one state government. He came to Toledo from Washington, D. C., where he was Assistant Director of the Bureau of the Budget.

To furnish its incoming city officials with facts about city affairs and governmental operation and to equip them for prompt action, an exhaustive city survey was made

under the direction of Lent D. Upson, governmental expert. Toledo firms cooperated in staffing the various committees with business and industrial executives who were especially qualified in the particular line of work which they were investigating. After six weeks of digging for facts, the survey was completed. When the reports of the findings and recommendations were published, Toledo citizens had a fair idea of how a business administration would run its city government. (See page 109, this issue.)

The suggestions which business men have made in Toledo may well be the solution of problems elsewhere. We mention here briefly some of the highlighted facts and recommendations in the Toledo survey reports.

Highlights of the Reports

Welfare.—Simplification of welfare activities. Survey of hundreds of grass plots and triangles, owned as parks, to determine whether their value warrants the upkeep expense. Inquiry into park concession revenues, which have dropped sharply. Campaign to increase the number of golfers using the public links to provide for upkeep. Employment of park police to prevent vandalism of equipment.

It is suggested that the city welfare farm—polite name for workhouse—could be maintained with a negligible cash outlay by the city if provision for prisoner work was made, especially a shop for rainy-day activities, and if a better accounting of products of the farm was put into effect. The city-owned cemetery could be made self-supporting by paying watchmen and gravediggers on a monthly instead of an hourly basis.

Health.—A full-time health commissioner and an advisory board. Zoning of the city for public health clinics. Coordination of city and county health functions.

Notable in the performance of this department were (1) the work of twelve physicians and one dentist employed by the Board of Education in contributing to public health by making 55,000 examinations of boys and girls annually, and (2) the record of no smallpox cases in Toledo in the past two years, and no cases of typhoid fever developed in the city.

Finance.—A 2-mill tax levy to make up the estimated 1936 operating deficit of $1,584,000. Bond refunding at lower interest rates. Collection of tax delinquencies.

It was revealed that the Water-Works Department had been a big factor in supporting the city during the five-year depression. Previous to 1934, when its funds were segregated, this utility had turned over $790,105 to help finance other city departments. Today, this Department has on hand $235,750, which will be increased by payments of $335,000 advanced to other departments at the beginning of 1936.

Purchasing.—Men to replace women as purchasing agent and assistants, because the character of the work requires the services of a man. Complete independence of purchasing from department heads. Better control over items bought. Safeguards from thefts. Monthly inventories. Grouping of purchases. Use of specifications instead of trade names. Promotion of more competition among suppliers. Purchase of gasoline in tank-car lots would save approximately $2,500 annually. Use of University of Toledo laboratories for testing materials and supplies purchased.

Public Safety.—Revamp qualifications of police officers with more emphasis upon mental capabilities and general intelligence. Training courses for all grades of officers, starting with a six-months preparatory "rookie" course at the University of Toledo. Fixed responsibility for every police officer, to eliminate "buck-passing." Toughness and offensive braggadocio of police officers to be replaced by courtesy.

Firemen to be placed upon a 24-hour shift instead of the present 8-hour shift, which limits the Department to one-third of its man-power at any one time. Reorganization of Department of Inspection to increase collection of fees and make the Department self-sustaining.

Civil Service.—Recommended that civil service examinations be improved in quality and type of questions. Examinations formulated with the aid of University of Toledo instructors and industrial personnel men. Abolish the filling of positions with "common labor" to avoid civil service. Qualifications of police and firemen should be raised. Appointment of a skilled personnel man to act as secretary to the Civil Service Commission. Greater attention and courtesy on the part of city employees in dealing with the public.

Accounting.—A central cost accounting system to bring together the accounting of all departments. A personnel department for the hiring and firing of all workers. Central control of all payrolls.

General Business.—A city-owned stone quarry, if properly operated, could produce sufficient stone for all city street repair work. Development of the fertilizer business—outgrowth of sewage treatment—and placing its operation upon a commercial basis. Better inspection of street work and construction projects. More rigid contracts to protect city against defective work.

The Immediate Problem

The first problem which faces City Manager Edy and the Toledo Council is an estimated 1936 budget deficit of $1,584,000, and steps have already been taken to relieve the situation. Negotiations have been completed for the refunding of $994,000 worth of bonds, part of them at a lower interest rate. While such action does not reduce the city's indebtedness, it has eased the immediate need for operating revenue. It has produced another important advantage, too, in effecting a saving of nearly $50,000 a year in interest payments. Because of the magnitude of Toledo's financial problem, City Manager Edy has asked to be permitted to assume the position of Finance Director, so as to have direct supervision and contact with all financial matters. He will serve in this capacity without additional pay, thus saving the city $4,205 a year in payroll expense. While these savings may seem trivial in comparison with the hundreds of thousands of dollars of indebtedness, it must be remembered that it is these same small amounts attached to expenses and multiplied many times a year which have piled up huge deficits in many cities. Then, too, consider the fact that the new Toledo administration is only one month old.

If Toledo's new city manager form of government can achieve such results in its first month—usually a "warming-up" period—citizens in Toledo may rightfully look forward with genuine enthusiasm to the improvements which will be produced as the full power of the administration gets under way.

Do You Dictate by Machine?

Officials Who Dictate by Machine and Why They Do It

A SIGNIFICANT thing about modern machines and devices is that those who make full use of them are usually enthusiastic boosters. Speaking of dictating machines, C. P. Gross, Superintendent of the Water and Lighting Commission of Wisconsin Rapids, Wis., says: "These machines are especially adapted to our business. Much time is saved for the stenographer. Work can be done at any time without calling upon her time, and the records are merely taken to her desk and then transcribed and typewritten. Outside of the cost of the records, our expense with this machine is 75 cents a month, which we pay for service of each of the three machines. We have had no difficulty or trouble of any kind. *I feel that these machines are the proper thing for any office.*"

The chief executive of one of our larger cities, and one with a most complimentary reputation for efficiency and humanity, writes that he fears "comments from me would immediately be used for advertising purposes by the companies involved. The fact that we use the equipment should be answer enough." Indeed, if their products are so good, they merit an introduction here, which Police Commissioner E. M. McSweeney of Boston gives them in this forthright manner: "There are two dictating machines in this Department—namely, Ediphone and Dictaphone, which are giving satisfactory service. These machines are assigned to the three homicide stenographers of the Department, who have occasion to transcribe voluminous shorthand statements, and the machines serve to relieve them of considerable typing."

Purchasing for Milwaukee

An equally impartial view is given by Joseph W. Nicholson, Purchasing Agent of Milwaukee, who writes: "This letter is being dictated on an Ediphone. There is only one other dictating machine in the building, being used by Dr. B. L. Corbett, Executive Secretary of the Milwaukee Safety Commission. The machine he is using is a Dictaphone; both of these machines are very satisfactory. Dr. Corbett advises that he is well satisfied with his machine and I can report the same satisfaction. These machines are eight years old." Why are not more dictating machines used by the numerous flourishing departments of the city of Milwaukee? Mr. Nicholson states very clearly why he has one:

"1. The reason I purchased my machine is that I am constantly interrupted because of salesmen, interviews with department heads, employees, telephones, etc., and I can dictate during odd moments and during the times when the office is closed and there are no other employees present.

"2. I also use it in the preparation of articles relating to purchasing matters and in the preparation of lengthy reports.

THE SUPERINTENDENT OF THE WATER AND LIGHTING COMMISSION OF WISCONSIN RAPIDS (LEFT) SAYS: "THESE MACHINES ARE ESPECIALLY ADAPTED TO OUR BUSINESS"

"I FEEL THAT THESE MACHINES ARE THE PROPER THING FOR ANY OFFICE," SAYS MR. GROSS (ABOVE)

"3. Any one having a great deal of dictating to do, with time out for thinking during the dictating period, will find that the machine saves the time of the stenographer as well as his own.

"4. With this machine, I can give service to the public and fill in the odd moments between salesmen's calls, conferences, telephone calls and desk work.

"5. I would advocate the use of them in any department where the writing of letters and reports constitutes a substantial part of the work of the department head."

For Seattle Police Reports

A year ago last June a new system of records was introduced into the Detective Division of the Seattle Department of Police, necessitating the making of extended reports. Instead of requiring the officers to write out their reports of investigations, they were permitted to dictate the results into machines, "greatly reducing the office time of the members of the Detective Division." E. W. Zoris, Chief of Detectives, says that this "improves our efficiency."

On Cincinnati Street Repairs

In the winter of 1931 the Division of Highway Maintenance of Cincinnati's Department of Public Works bought itself a dictating machine and, says C. E. Brokaw, Superintendent of Highway Maintenance, "it has been in constant use ever since." Here again, a prime value of the machine is its ever-readiness even to the ultimate depicted by Mr. Brokaw: "In the case of detailed reports requiring concentration, it is possible to dictate them in the evening when most of the other office activity has ceased. On this [machine] are dictated weekly, monthly and annual reports, most of our correspondence relative to complaints, job orders for all work done by this Division, and many miscellaneous reports explaining our work methods, new equipment, organization and personnel performance, for which we have a great many requests."

Managing High Point, N. C.

"Dictating machines are now being used in the Divisions of Parks and Recreation and Charities and in my own office," writes City Manager E. M. Knox of High Point, N. C. "The machines were selected in order to permit the greatest volume of dictation to be handled in the minimum time, and in view of the added convenience of being able to dictate at any time of the day or night without having to secure the services of any other person. For instance, this letter is being dictated at 3:30 o'clock on Saturday afternoon and our offices have been closed since 1 o'clock. The large number of personal interviews makes it impossible to do any great amount of dictating during office hours and it would be practically impossible for me to do my work without the use of dictating machines. I have a dictating machine in my residence, which I frequently use in the evening when our work is particularly heavy. I have been using dictating machines for twelve years, and I sincerely believe that they increase my efficiency at least 100 per cent."

Four Measures Put Irvington Treasury on Easy Street

"Irvington, I believe, Occupies the Enviable Position Today of Being One of the First Municipalities Out of the Depression"

By HERBERT KRUTTSCHNITT
Director, Department of Revenue and Finance, Irvington, N. J.

IRVINGTON is using the following methods for making tax collections:

1. Usual method of sending the bill and then waiting for the money to come in.

2. Staff of five solicitors who do nothing but canvass the town in an endeavor to interest the people in paying their taxes.

3. Tax installment system for both delinquent and present taxes.

4. Monthly statement and a letter to taxpayers advising them that interest is running against their taxes and that they had better pay up in order to avoid consequences.

We now have an ordinance which makes it necessary for the moving-man to secure a permit before he can move anything out of town. This method enables us to get in those personal taxes which we should otherwise not collect.

It is surprising to note the success we have had by these methods. With the exception of the first one, they have been used only during my administration. People have actually become tax-minded, and they realize now that taxes are just as important a part of their weekly budget as any other payment of money.

We have the Kardex system for delinquent taxes. This system has worked out perfectly, especially since we now have one complete record of every piece of property and the entire charges pertaining to that piece of property recorded thereon. Before, it was necessary to look in four separate places for delinquent taxes and assessments. These records have speeded up our work on delinquency at least 60 per cent.

We have also established several other features similar to those adopted by the city of Newark, though each city arrived at the same result without seeing the other's system, both being practically the same.

It is my ambition as Director of the Department of Revenue and Finance eventually to have a $3 tax rate and to collect 98 per cent of one year's tax. I believe we now have the tools to work with.

The town of Irvington, because of the installation of its new ideas, did not and could not cut down its payroll. New help had to be added because of new methods adopted, and, as I see it, this additional payroll has more than paid

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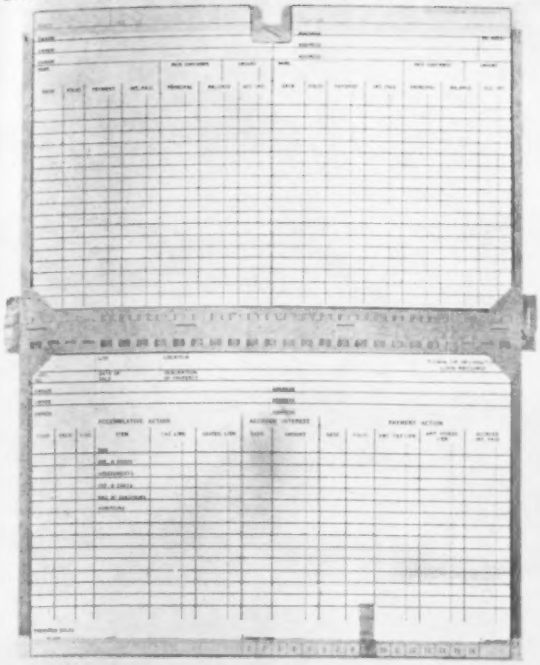
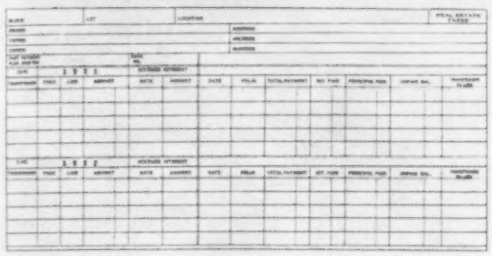
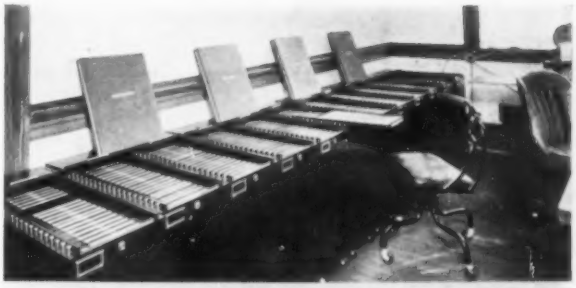
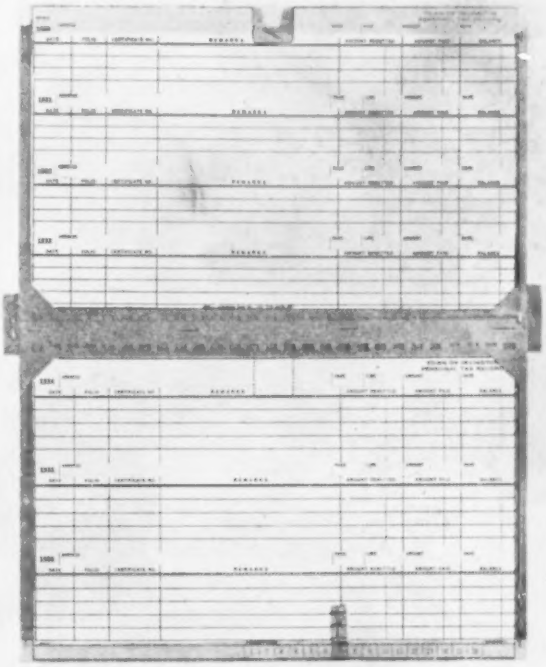


OVER-RIDING FORM FOR REAL ESTATE TAXES





PERSONAL TAX RECORD (8"×5")



THE FORMS USED AT IRVINGTON, N. J., AND THE 12 KARDEX FLOOR MODELS THAT CONTAIN THEM

All taxes in arrears, including liens, real estate taxes, assessments and personal taxes, are placed in this record. Liens, real estate taxes and assessments are filed together in lot and block order. Personal taxes are arranged alphabetically in another group of cabinets

Both records are cross-indexed for street location by means of signals in a code, using 16¼-inch squares and signals of five different colors and in three contrasting types

Three additional signals are used on the lien arrearage record to indicate the presence of a lien, a real estate tax or an assessment. A fourth is placed at the right of the visible margin when the property is in the hands of the collection department

for itself in the saving of interest alone on uncollected taxes. I believe this force of seven people added to our Department is a permanent fixture and will continue to remain with us for a great many years.

Two Years Ago—and Today

Irvington, I believe, occupies the enviable position today of being one of the first municipalities out of the depression. Two years ago, I did not know where the payrolls were coming from, and today we have a lot of money on hand. All our accounts are separated; no longer does Current borrow from Trust, as it did in years gone by. The trust funds are properly separated and earmarked, and are in the bank awaiting the day when they will be used to pay off the bonds for which they were intended. The Department practically runs by itself now that we have things where we want them.

I think we will be in a position to restore the salary deductions of 16 per cent, for the last half of 1936. We could restore them as of January, but for the fact that we have an agreement with the Board of Education not to do so until every department can be taken care of.

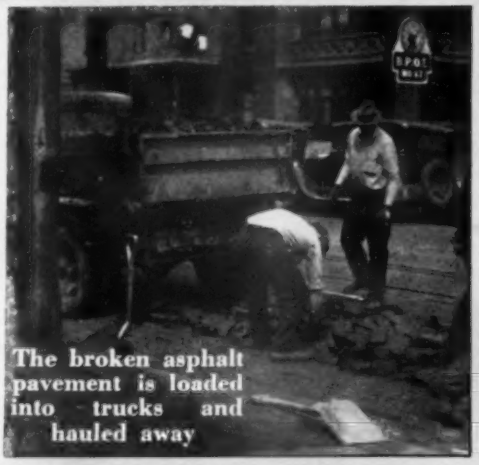
We shall have a cash surplus sufficiently large to enable us to take care of several mandatory increases in addition to the pay restoration; also, a budget increase of practically $110,000 is included. Several large items such as radio patrol, new fire apparatus and new garbage trucks will be purchased. The old procedure was to bond these items because they were capital expenditures. Under my régime, this will not be the case. All the small capital items will be put in the budget, to be paid for in the year in which the debt was incurred.

In addition to this, I believe there will be enough money left in the cash surplus to reduce the tax rate sixteen points.

Street Repairs in Erie, Pa.

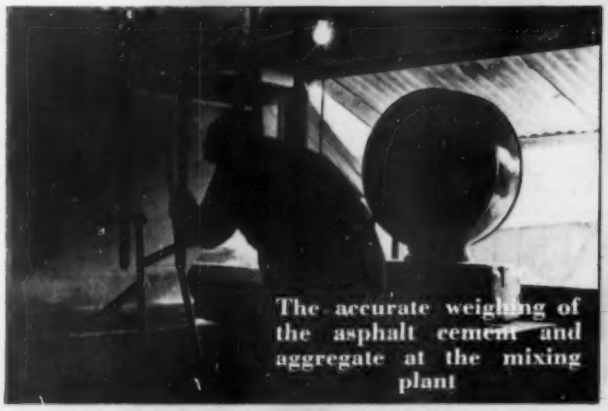
Cracks caused by water entering beneath the asphalt paving make repairs necessary

Jack hammers follow the chalk lines and cut out the bad spots



The broken asphalt pavement is loaded into trucks and hauled away

The hole is swept clean, the edges cut straight and tarred



The accurate weighing of the asphalt cement and aggregate at the mixing plant

Spreading the top course evenly with lutes

Hot irons are used at the edges to insure a tight seal against the old pavement

The tandem roller leaves a smooth patch for traffic to ride over the next day

Photographs by William Anthony Ims

Street Maintenance on Badly Bent Budgets-III

Street Officials Report on 1935 Work and 1936 Prospects

Milwaukee, Wis.

BEGINNING January, 1933, practically all new street construction in Milwaukee was suspended and street maintenance funds were reduced to about one-third of the usual appropriation. At that time the pavements in the city, with a few exceptions, were in first-class condition, because during the previous ten years the city had prosecuted large paving projects and ample money had been appropriated for maintenance.

Reduced maintenance budgets were maintained after that time with few detrimental results, until the winter of 1934-35. That winter was very hard on pavements, owing to repeated alternations of freezing and thawing, and by spring the pavements were in a deplorable condition. This situation has been remedied so far as was possible with the money available. It is anticipated that the appropriation for this purpose will have to be increased for 1936.

While a great deal of street work has been done under the auspices of the various relief programs, it has been kept separate and distinct from the usual maintenance. The ordinary maintenance work has been done by city forces with regular city appropriations.

The work being done by the relief forces was entire reconstruction or the improvements of totally unimproved streets. Relief labor used on street work reached its maximum during the CWA, at which time 5,500 men were engaged. As this maximum number was reached during the winter months, their work was confined principally to the grading of unimproved streets.

During 1936, it is contemplated that the work of the city forces and that of relief will be coordinated in order that the city may contribute some materials for the relief projects and thus perform work of greater value to the city. This work will include maintenance and reconstruction of all types of pavements now in use, and also the improvement of unimproved streets. Work is now being prosecuted under a street maintenance WPA project involving the expenditure of $2,750,000. Another project totaling $1,500,000 has not yet been approved.

R. W. GAMBLE,
Superintendent of Street Construction and Repairs, Department of Public Works.

Honolulu, Hawaii

ALL streets constructed during the past ten to fifteen years in Honolulu are in good condition. Streets constructed prior to that time need reshaping to conform to modern practice. Street patching on asphalt pavements is done with four Ford trucks equipped with a small emulsified asphalt tank and pump operated from the Ford motor. Concrete pavements have required very little patching.

All repair work is done with regular forces. Relief labor has been used only on new construction. We have had approximately 300 men from relief on new construction for the past year.

For 1936, it is planned to resurface approximately 3 miles of streets after reshaping high crowns which now exist. It is also planned to purchase additional modern equipment for road maintenance, including a diesel shovel and diesel roller. Under new construction we have six new concrete bridges to build, and expect to complete approximately 2 miles of new streets.

B. F. RUSH,
City and County Engineer.

Mishawaka, Ind.

OF the 136 miles of streets in the city of Mishawaka, Ind., all are in good general condition except 1 mile of the 41 miles of paved streets. This street has a high maintenance cost because the base and wearing course of the sheet asphalt pavement have broken down, necessitating the replacement of this 30-year-old pavement.

The good condition of the dirt roads is due to the character of the soil—sand and gravel—along with vigilant grading. The Street Department has kept about twenty men busy with tractors and graders on these dirt roads throughout the year, except when the ground is covered with snow or is frozen too hard. The regular forces have been supplemented with FERA, CWA and WPA help.

Oklahoma City, Okla., is one of the cities that maintained a reasonable budget item for maintenance during the depression years. Contract prices on asphalt and concrete repair work have been ridden down with increased competition.

Maintenance on paved streets is done mostly in the spring, with emulsified asphalt, pea gravel, sand and stone blades. In the summer all expansion joints are trimmed to the contour of the pavement. In the months of October and November, the cracks are poured with thin cut-back asphalt. The use of wire mesh and cork expansion joints on new pavements constructed during the past four years has eliminated much cracking and expansion joint trouble.

During the past few years relief labor has been used mostly in construction and reconstruction of park facilities. This has allowed us to keep a regular force of men on street maintenance despite curtailed budgets.

In 1936 our plans are to use the regular forces only on maintenance, since WPA regulations prohibit the use of men on anything but new construction. Projects include the general reconditioning of shoulders on several state highway routes in the more rural sections of the city. These shoulders are in bad condition owing to resurfacing of the old concrete pavement with 5 inches of mesh-reinforced concrete, and the lack of gravel in the mixture used by the contractor in raising the shoulders. We intend to mix gravel and cinders with this soft material and roll with a 10-ton roller. Our plans also include repaving the one bad street mentioned above, which will probably be done with PWA funds if the property owners consent to pay for the materials used on a ten-year assessment basis. We also intend to pave several alleys with brick or cement concrete to prevent erosion. Several streets will be opened

through some of the less populated subdivisions.

WALTER G. WIEKAMP,
City Engineer.

Enid, Okla.

THE asphalt-surfaced streets in the city of Enid, Okla., are generally in fair condition, but those which are from fifteen to twenty-five years old are in poor condition, owing to sudden changes in temperature and the low penetration of this asphalt at the time of its laying. Concrete streets, generally speaking, are in good condition; dirt streets are in fair condition; and gravel streets in very good condition.

The method of maintenance under the commission form of government, with the Street Commissioner at the head of all maintenance and repair, undergoes considerable change with each change in administration. The work that has been done and is being done, except for 55 blocks of gravel street constructed by relief labor, is done by a regular force of men thoroughly trained in this particular line of work. The amount of relief labor used to gravel streets in this city is indefinite, but approximately 1,600 man-hours were necessary for each standard block of gravel, which, in turn, provided work for 40 men for 5 days.

In maintaining all dirt streets, standard maintainers are used and in all repair of hard-surfaced streets cold patch of standard makes and concrete are used. Under the new WPA it is expected to complete 100 additional blocks of gravel in this city with relief labor, supervised by the Street Commissioner and the City Engineer.

CHESTER B. LEWIS,
City Engineer.

Bradford, Pa.

BRADFORD, PA., is a city of about 19,500 and differs from cities of similar size in that the area is small and the total length of the streets is comparatively short. We have a total of 25 miles of paved streets and 6 miles of unpaved streets. Of the total of paved streets, about 4½ miles are on state highway routes.

In 1929 we were faced with approximately 11 miles of old pavements which were in need of repair. At that time the city voted a bond issue of $300,000 for street improvement. Since that time, we have resurfaced or reconstructed 42,435 lineal feet of pavement with a total area of 123,790 square yards. Some of this yardage, about 30,000, was paid for jointly by the state and the city. We have remaining 14,740 lineal feet of street, consisting of 42,162 square yards, which is in need of resurfacing or reconstruction.

Relief labor was used in 1934 in the construction of 6,400 square yards of concrete pavement on one of the state highway routes. This year, with unskilled labor furnished by WPA and skilled labor, materials, and equipment furnished by the city, we reconstructed 3,200 square yards of pavement. The rest of the work has been paid for directly to labor or contractors. We have used delinquent taxpayers on some of the work but in very few instances.

We are endeavoring to develop a "pay as you go" policy in connection with the remainder of our street program. For the past two years we have received approximately $4,000 per year as a return from the state motor license funds, which are applicable to street work.

For 1932-1934 the Council appropriated $1,500 for street maintenance and $250 for street improvement. For 1935 the budget was $1,500 for maintenance, and $5,000 for improvement. By combining this appropriation with the WPA, we were able to carry out a small program last year.

The majority of our streets are of the hard-surface type, either brick or concrete. We did surface some old brick pavements with asphalt block during our bond issue program. They have given very satisfactory results and have cost nothing in maintenance to date. Being removed from easy access to asphalt plants, we have adopted the segmental type of pavement in most cases, such as brick or asphalt block, and find we can maintain these pavements with no expensive equipment and no high-priced personnel. As the new brick and concrete pavements require the least amount of attention, we hope to be able to complete our program on the old streets before the maintenance of the other streets becomes excessive.

We endeavor to keep the newer streets in good repair by careful attention, and the annual fund of $1,500 seems to cover this adequately. We spend very little on the old streets, in anticipation of reconstruction over a period of a few years. Any really serious conditions are of course taken care of.

The contrast between the old streets and the repaired ones is rather striking. The taxpayers, not being in favor of additional bond issues, seem to approve the slower but progressive plan of street improvement.

We are preparing estimates now for our budget meeting and hope with the aid of the motor license fund, together with an appropriation from the Council, to be able to reconstruct from 3,000 to 5,000 square yards of pavement in 1936.

J. HENRY QUIRK,
City Engineer.

CITY MANAGERS APPOINT CAREER SERVICE COMMITTEE

WAYS and means of improving the quality of local government employees through selection and training will be studied by a permanent committee of the International City Managers' Association, Hollis R. Thompson, City Manager of Berkeley, Calif., and President of the Association, announced on February 24.

Called the Committee on Career Service, the investigators have as their goal the creation of "a genuine municipal career service throughout the country." One objective of the study is the clarification of the special personnel problems of local governments and an analysis of obstacles to the establishment of a career service, as the Commission of Inquiry on Better Government Personnel has done for government in general.

Subjects included in the study are: preparatory education for municipal administration; training while in service; restriction of jobs to local residents; state-wide retirement systems for municipal employees, and for administrators in particular; standards for the appointment of department heads; and salary standards.

The Committee Chairman is R. M. Dorton, City Manager of Long Beach, Calif. Other members are Louis Brownlow, Director, Public Administration Clearing House; Charles E. Merriam, Chairman, Department of Political Science, University of Chicago; John M. Gaus, Professor of Political Science, University of Wisconsin; Luther Gulick, Director, National Institute of Public Administration; Clifford W. Ham, Executive Director, American Municipal Association; C. A. Harrell, City Manager, Binghamton, N. Y.; F. R. Buechner, City Manager, Piqua, Ohio; Neville Miller, Mayor, Louisville, Ky.; William E. Mosher, Dean, School of Citizenship and Public Affairs, Syracuse University; Dr. Leonard D. White, United States Civil Service Commission; and G. Lyle Belsley, Director, Civil Service Assembly of the United States and Canada.

A Village Water Supply in Rip Van Winkle Country

No Twenty-Year Nap for Wide-awake Catskill, N. Y., Which Has a Modern Water Supply

SITUATED on the shores of the Hudson River at the western end of the new Rip Van Winkle Bridge and 35 miles south of Albany, the village of Catskill, with a population of 5,082, enjoys an unusually fine water supply. The source is an impounding reservoir 420 feet above sea level and 10 miles northwest of the village.

This upland reservoir has an area of about 100 acres and draws on 19 square miles of drainage for its supply. The concrete spillway is equipped with 3-foot flash-boards to increase the storage capacity of the reservoir. A brick gatehouse with tile roof permits drawing water from two levels, 16 and 24 feet below the spillway elevation, through an 18-inch cast iron pipe 2,000 feet long leading direct to the basement of the filtration plant.

THE INTAKE GATEHOUSE AND RIPRAPPED FACE OF THE DAM

Coagulation

Water is delivered to a steel mixing tank 6 feet in diameter and 9 feet high, where alum at an average rate of 0.5-grain per gallon is applied from the solution tanks above by gravity. The mixed water then flows to the adjacent baffled settling basin through an L-shaped aerator with 40 spray nozzles. This basin, measuring 280 feet long by 200 feet wide, with one corner cut off, has a theoretical detention period of four days. Observation of the character of the water shows that the real detention period is about two days. The floc settles out quickly in the settling basin, but is so small in amount that washing is required only once a year, at which time raw water without alum is by-passed direct to the filters.

Filtration

The six rapid sand filters are located on the second floor of the building. They are constructed with cast iron underdrains over which is spread 12 inches of crushed stone, then 24 inches of graded gravel and 24 inches of sand. A feature of this plant, installed in the interest of economy, is the reduction in the number of valves and in the types of valves used. There is a single hydraulically operated influent valve which controls the flow of water to all six filters. Each filter has a single-lever-operated, quick-opening wash-water valve, and then there is a main effluent valve for all the filters, and a main sewer valve for all filters.

THE SETTLING BASIN, AERATOR AND FILTER BUILDING OF THE CATSKILL, N. Y., WATER WORKS

This combination of valves requires that the entire plant be shut down when washing a single filter. A wooden tub wash-water tank of 61,000 gallons capacity is located on the third floor of the filter building, with an overflow to the top of one of the filters. Filtered water is pumped to the wash-water tank by one of two Buffalo gas engines operating 6-inch DeLaval pumps. One of the engines is also connected with a belt drive to a General Electric generator, which charges a group of 55 Gould battery jars on shelves on the third floor of the building. Electricity from this source is used to run a ¼-ton, ¼-horsepower Yale electric hoist for raising alum to the third floor of the building, to start the gas engine, and for light for the filter building and filter operator's house. The rate of wash for the filters is 24½ inches vertical rise per minute. A Simplex loss-of-head gage at one end of the operating floor records the loss of head on the group of filters. At the opposite end of the operating floor is a Simplex venturi meter on the filtered-water line, which records the rate of flow on a chart and totals the flow on its register.

On the top floor are duplicate concrete alum solution tanks, and about one-half of the top floor is available for the storage of the filter alum, which is purchased in bags from the General Chemical Co.

At the front of the red brick filter building on the operating floor is the old hypochlorite solution tank, which is no longer used, having been supplanted by a pair of Wal-

lace & Tiernan solution feed vacuum type chlorinators which control the flow of chlorine gas from Electro Bleaching Gas Co. 100-pound cylinders placed on Fairbanks scales between the two chlorinators. This arrangement permits shifting control of the chlorine from one to the other chlorinator merely through the manipulation of two valves. The plant is operated 24 hours a day, and 4 pounds of chlorine is used per 24 hours with the discharge from the filters uniform, giving a total flow of 850,000 gallons per day flowing to the 100,000-gallon clear well adjacent to the filter plant. An Eimer & Armend ortho-tolidine comparator is used to check the free chlorine in the filtered water.

To protect the plant against possibility of the loss of sand by too rapid washing, a novel device is used. Five small porcelain cups are securely wired to a pole, with the top of the first cup 6 inches from the end of the stick, and the top of each successive cup 3 inches higher. By means of a stop on the stick, it is held at a definite elevation during washing and, by removing it frequently, the operator can determine the elevation to which the sand is lifted during washing. This lift is maintained at about 12 inches, leaving an ample factor of safety against the loss of sand, since the wash water troughs are 24 inches above the normal elevation of the sand.

Algae Control

No difficulties are experienced with algae as long as water is flowing over the spillway. As soon as this flow ceases, growths of algae are immediately evident. In 1935, a total of 200 pounds of copper sulphate applied in 10- to 12-pound doses by dragging in a burlap bag behind a rowboat in coves was sufficient to overcome the threat of tastes and odors caused by algae growths.

This well-landscaped and well-kept plant was built in 1930 by Gannett, Seely and Fleming, contractors, Pittsburgh, Pa., from the plans of Hazen & Everett, consulting engineers, New York City. The 8 miles of 16-inch cast iron pipe connecting the clear wells with the village were installed by A. W. Byrne & Son, of Hartford, Conn. The plant is operated under the direction of J. Chester Beare, Superintendent, Board of Water Commissioners, with C. H. Wellington as filter operator.

Liability for Unsatisfactory Water

PENDING in the Labette County, Kansas, District Court are actions for damages against the city of Chetopa on account of injury to the teeth of children, attributed to the presence of fluorine in artesian water supplied by the city for human consumption. Apparently, no fault is found with the Chetopa water supply, excepting as to its deleterious effect upon the teeth of children.

In view of the fact that the city seems to have given distinct warning to consumers against the drinking of the water by children, it is difficult to understand how recovery of substantial, if any, damages can be expected by the plaintiffs in these suits. In this aspect, the cases seem to be controlled by what the New York Court of Appeals said in the case *Oakes Manufacturing Co. v. City of New York*, 206 N. Y. 221, 99 N. E. 540, 42 L. R. A. N. S. 286. There plaintiff was denied right to recover because the presence of chlorine in water furnished by defendant city rendered the water unfit for plaintiff's use in manufacturing dyes. The Court said:

"Plaintiff understood the character of the water which was being supplied to it, and it could not voluntarily use it with knowledge of its impurities and then recover damages because of them."

It was treated as an established fact in the New York case "that the presence of chlorine in the water has been and is injurious to the boilers and manufacturing processes of the plaintiff." Yet recovery of damages was denied.

In *Griffin v. Griffin Chero Cola Bottling Co.*, 35 Ga. App. 779, 134 S. E. 812, the Georgia Court of Appeals sustained an award of damages in favor of a manufacturer of beverages on the ground that water supplied by appellant city was unsuited to use in the manufacture. But the decision turned distinctly upon the Court's finding that the manufacturer, in using the water, did not know that it had been rendered unpalatable by the addition of chloride of lime, and that the city was negligent in failing to so inform the manufacturer. The Court treated as vital elements the facts that the city knew that the water was being used to manufacture beverages, and that the manufacturer was not lacking in due diligence in failing to discover that the water had been rendered unpalatable.

There is abundant authority for holding water companies and municipalities liable for disease spread through the *negligent pollution* of water furnished for human consumption. (See cases cited at 67 C. J. 1282.) But we find no authority for saying that, in the absence of some mandatory charter or statute, a city or water company is liable because water in its natural state of production proves injurious when used for certain purposes, particularly where the city or company has not been remiss in failing to avail itself of an opportunity to secure a better supply. In fact, the California Supreme Court has ruled that if a reasonably wholesome water is supplied to consumers, a city or company cannot be constitutionally required even by statute to furnish the best water available. (*Frost v. Los Angeles*, 181 Cal. 22, 183 Pac. 342, 6 A. L. R. 468.) The Court declined to countenance a "theory that it is better for the urban population of the state that they should die of thirst than that they should quench it with ordinary healthful water which is not the very purest that can possibly be obtained. . . ."

The fact that in different states the quality of water to be furnished consumers is covered by statutory requirements indicates a general understanding that the fact that water is offered to the public for private consumption does not imply an obligation to supply water that is suited to all uses and all needs.

And where the legal obligation, by virtue of statute or otherwise, is to furnish "pure and wholesome water," the Pennsylvania Supreme Court seems to have fairly measured the water supplier's duty in saying:

"Ordinarily pure and wholesome water necessarily means such as is reasonably clean from dirt, discoloration, and odor, reasonably free from bacteria and coli, or any other infection or contamination which renders the water unfit for domestic use and unsafe and dangerous to individuals." (*Pefler v. Pennsylvania Water Co.*, 221 Pa. 578, 70 Atl. 870.)

A. L. H. STREET.

Stabilized Slag on Detroit Streets

By C. D. WARNER

Superintendent of Maintenance, Unpaved Streets, Department of Public Works, Detroit, Mich.

LAUNCHING an extensive street improvement program as a WPA work-relief project, the Department of Public Works of Detroit early last fall began grading, drainage and resurfacing work on 165 miles of city streets. The project is expected to require a year for completion, and during the early part of December it was providing work for approximately 11,000 men. Hand labor is being used extensively, but every effort is being made to assure improvements of a worth-while and permanent nature.

Included in the program is the construction of 50 miles of stabilized slag wearing courses, using ready-mixed clay-stabilized slag, supplied by a plant specially designed to produce this material. The slag-mix is being laid on dirt streets to provide an improved surface and subsequently to serve as base for a bituminous treatment. The remainder of the program consists of reconditioning work on 70 miles of existing slag surfaces and on 45 miles of macadam surfaces likewise to be given bituminous treatments. The newly designed stabilized slag is also being used to some extent in this reconditioning work, to build up the wearing course at intersections and other points where necessary.

Large Employment on Drainage

By far the greater part of the employment for the welfare labor is provided by the drainage and grading work. On the streets where the new slag surfaces are being laid, a complete drainage system is being constructed and the base is carefully prepared. A 4-inch mat of the stabilized material is then placed to a width of 18 feet, some hand labor being employed in spreading, though for the most part this is accomplished by a blade. After this stabilized mat has been thoroughly compacted by traffic over a period of several months, a 1½-inch oil-aggregate mix is to be placed over the stabilized base as the final step in the improvement. The streets being thus improved are all residential streets not subject to heavy traffic and have previously been maintained as dirt or gravel surfaces.

An important part of the drainage work is the installation of manholes in every block to serve as catch-basins. These manholes are installed with a special elbow of vitrified material which will not only prevent sewer gas from escaping to the surface, but will also prevent loose materials and débris that collect in gutters from passing into storm sewers. The manholes are designed to be cleaned at regular intervals.

Connecting with the catch-basins on all streets having a clay subgrade is a system of French drains constructed to carry excess water from the wearing course. These drains consists of trenches about 20 inches deep and 12 inches wide at the top, tapering to 8 inches at the bottom, filled with coarse aggregate averaging 2½ inches in size. A drain of this nature runs longitudinally along each side of the stabilized mat, and V-shaped intersecting drains

UNLOADING STABILIZED PLANT-MIXED SLAG FOR GROVE STREET, DETROIT, MICH.

running across the roadway are installed every 50 feet. This system, together with a modified "A" crown as recommended for stabilized material, is expected to supply effective and permanent drainage. The plans call for a crown of about ⅜- to ½-inch per foot.

The Wearing Course

The material for the wearing course consists of blast-furnace slag, classed as fines, plant-mixed with pulverized clay and calcium chloride in definite proportions in accordance with soil stabilization principles. The mix is designed to provide a maximum density and all-weather stability.

Specifications for the final mixture call for a gradation as follows:

Passing ¾-inch screen	100 per cent
Passing ½-inch screen	60-90 per cent
Passing No. 10 screen	35-50 per cent
Passing No. 40 screen	20-40 per cent
Passing No. 200 screen	5-10 per cent

The specifications also require a plasticity index for the final mix of from 5 to 10, as determined by the physical soils tests developed by the U. S. Bureau of Public Roads. An analysis of the materials indicated that clay to the extent of about 12 per cent by weight should be added. Calcium chloride is also included as an integral part of the mix, at the rate of about 16 pounds per cubic yard, and sufficient water is added to provide optimum moisture for spreading and compacting. The material is delivered to the road at $1.52 per ton, weighing about 2,700 pounds per cubic yard.

Experience on the streets already resurfaced shows that this mix compacts readily to form a dense mat. Supplied from a mixing plant having a capacity of about 100 tons an hour, the material is spread and shaped as soon as it is placed on the road. The 4-inch mat is laid in two layers of 2 inches each to facilitate compaction, and whenever possible the delivery trucks are routed over the newly laid material. Compaction is thus obtained quickly, and there is very little interference with traffic. The density obtained by the stabilized material within a few days indicates that

it will provide an excellent base for the bituminous surface.

The equipment required on the project is greatly reduced by the use of the plant-mixed material. Use of the plant-mix also permits construction to go ahead even when weather conditions would prevent road-maxing operations. Although the plant is not operated as a part of the WPA project, the design and operation of the mixing machinery is of interest.

The Mixing Plant

Modeled after several gravel-clay stabilizer plants now in operation in Michigan, the mixing plant consists chiefly of hoppers having controlled feeds, a clay processing unit, a calcium chloride feed, and a pug-mill for mixing the various ingredients. The clay, obtained from a bank near the plant, is dumped by the truckload into a large hopper placed over a screw feeder. The screw feeder, forcing the clay onto a belt conveyor, regulates the amount going into the mix and also has a shredding effect. From the belt conveyor, the clay passes into the disintegrating unit, consisting of two sets of rollers. The rollers flatten the clay into thin strips, which fall directly onto the main belt conveyor, running from the slag hopper to the pug-mill. Before the clay and slag, now on the same belt, reach the pug-mill, calcium chloride is fed onto the belt from a small hopper, the flow being regulated by a plate with graduated holes at the bottom of the hopper. In the pug-mill, the materials are thoroughly mixed, and the final completed mixture is fed to a bucket-type conveyor, which elevates it to a raised loading bin. From this bin it is chuted directly into the delivery trucks.

A WPA Project

Funds for the entire street improvement program are supplied by the Works Progress Administration, with the exception of a contribution from the city to cover supervisory work and equipment. Approximately 200 non-welfare workers are employed in engineering and supervisory capacities to direct and coordinate the work. Skilled bricklayers to construct the catch-basins and gang bosses are, however, selected from the welfare workers.

Distinctive Sign for Schools, Parks or Cities

By CARL HEAD
Professor of Mechanical Engineering, James Millikin University, Decatur, Illinois

THE first impressions which a city makes upon tourists is often created by an array of billboards which clutter the landscape. How much better would be a neatly planted park or parkway along the highway, with the name of the town displayed in an attractive setting.

Realizing that first impressions are lasting, and wishing to identify its campus to the thousands of passing motorists, James Millikin University has placed its name conspicuously and attractively in large permanent concrete letters facing Fairview Avenue, a heavily traveled state highway. The letters can be easily read, and the surrounding campus has been landscaped to provide a contrasting and suitable background. The most unusual thing about this identifier is that the letters stand erect, rather than being placed on an embankment. The result is much more distinctive, as is indicated by the large number of inquiries about it which have been made in the short time since its installation.

The letters were cast by engineering students of the school. They are 25 inches high, 4 inches thick and have a 4½-inch face, with corners beveled. They are reinforced with rods which extend into the base on which they are placed. A 1:2:3 mix was used with ⅜-inch stone.

Forming was simplified by using the same form for different letters. For instance, after the I was cast, the bottom was extended to complete an L, and two of these were made. The J was made in the U form; the M converted into an N; and parts of the S form were used to make the R, which was the only form left after all letters were cast.

Students will have to get pretty rough to damage the letters, for the top bar of the E will support about 15 tons, and the other letters are proportionately strong.

Cities that are interested in improving the appearance of their entranceways may find in this the nucleus of an idea which may be developed into a distinctive and attractive "greeting" to all who pass on the highways.

REINFORCED CONCRETE LETTERS MADE BY ENGINEERING STUDENTS FURNISH EFFECTIVE PUBLICITY

Leaf-Eating Insects and Their Control by Spraying

By EDGAR A. FIELD
Chief Forester, Department of Parks, New York City

THE tree-spraying crews are the "cleaner-uppers" in the forestry program of a municipality. Strangely enough, insects that prey upon shade trees take kindly to life in the city. If this included only the crawling, flying, chewing and burrowing varieties that are considered native to our shores, the situation would be bad enough. But stowaways in insect form have found New York City a convenient port of call and Father Knickerbocker's shade trees a nourishing diet. From this and other seacoast cities, the imported vandals have succeeded in securely entrenching themselves over a large part of the continent.

Day of the Big Power Sprayer

Today, antiquated spraying machines can no more serve to control insect pests in city parks and streets than horse-drawn cars can be a substitute for modern subways. Your up-to-date sprayer is a powerful unit of mobile artillery. Mounted on a fast pneumatic-tired motor-truck chassis, its multi-cylindered pump throws insecticidal solutions under 600 to 1,000 pounds of pressure per square inch to the tops of the tallest shade trees. No insect colony can hide safely away on bark or twig when this machine gets into action. Its ample solution tank holds five or six hundred gallons of ammunition, which it shoots through heavy-duty "guns" at the rate of 50 to 60 gallons per minute.

Good Aim Essential

Now spraying a tree with a hose sounds marvelously simple. Any one, it would seem, should be able to get the spray material on the trees. Actually, of course, the spraying operation is designed to control one or more specific pests in winged, larval or egg form. It is the insect, not the tree, that is under fire. The "gun man" must know what he is spraying for, and the right amount of solution to put on to insure economical coverage and efficient control.

Modern traffic congestion presents difficult problems for those who undertake a program of spraying in parks and streets of large municipalities. In fact, parked cars, the owners of which are absent, eliminate all spraying on certain streets in congested sections during daylight hours. For this reason, many cities have had to operate spraying machinery during early morning hours, when the streets are free from cars—an arrangement which makes it possible also to operate the machines with two 8-hour shifts of labor each day during the rush of summer work. All-night spraying by use of powerful floodlights has been successful in Sacramento, Calif., and it will probably soon find more general use as a long stride toward better efficiency in the use of expensive machines. They may thus be kept on the job continuously when required.

NEW TYPE OF BEAN POWER SPRAYER USED IN CENTRAL PARK, MANHATTAN
50 gallons a minute, 800 pounds pressure. Split propeller power take-off

The Best Insecticides

Chemically, insect pest control measures of well-managed park systems are as modern as radio. The findings of Federal and state agencies as to new formulae for pest control are adopted as soon as they are approved for practical shade tree use. New types of arsenical solutions, nicotine, oil, and non-poisonous combinations of imported organic materials are being developed commercially each season, and it requires good judgment to select the combinations that are best suited to exacting city conditions.

There is no doubt that of all insecticides offered for control of leaf-eaters, arsenate of lead is the most generally employed. It is comparatively low in price and readily available. When used with a "spreader" of

caseine compound the spray solution will dry on the leaves in the form of a thin film rather than collecting in globules, which often fail to adhere to the leaf surface and are therefore wasted. The non-poisonous materials developed in recent years, mostly from organic substances, are high in price and limited in use thus far, but it is hoped that they may replace poison sprays to some extent in the future. Commonly used formulae for arsenical sprays call for from 3 to 6 pounds of arsenate of lead in powdered form to 100 gallons of water. One pound of calcium caseinate should be added as a spreader.

Tussock Moth the Pestiferous

The list of insects that seriously damage city and park shade trees is a Who's Who of the insect tribes of this latitude. For the doubtful honor of heading the list of these pests, there is heavy competition. But without much reservation, the white-marked tussock moth, widespread in its destructiveness, may be elected to first place. In New York City and Boston, it produces two broods; in Washington, three; hence thorough and almost continuous spraying must be done in order to give adequate control. The larvae are partial to the foliage of the horsechestnut, linden, Norway maple and elm; all popular shade trees in many parts of the country.

The gypsy moth was introduced from Europe into Massachusetts about 1869. Since then it has been a constant threat to shade trees, orchards and ornamental shrubs and has moved westward to the boundary of New York State, into Long Island, New Jersey and Pennsylvania. Outbreaks outside of New England have been local in character because of the barrier zone established on the New York-New England frontier in 1923. This area, consisting of nearly 4,000 square miles in New York and somewhat more in New England, is the main battlefront of the fight against the spread of gypsy moth to the West and South. It has destroyed shade trees on highways and in cities of Massachusetts and Connecticut, and in 1934 an infestation was discovered in New York City, which is now almost completely under control.

The web-building tent caterpillar brings a storm of complaints from citizens because of its wholesale depredations in the wilder park areas. Its conspicuous webs and habit of defoliating wild cherry trees and some other species puts it "on the spot" with Mr. John Public.

It is easily controlled by poison sprays. Unfortunately, it does especially well on waste lands and vacant lots outside the jurisdiction of city organization as usually authorized. Concerted annual campaigns for thorough spraying in suburban areas will wipe out this pest, if the work is started as soon as the larvae emerge in the spring.

Among the most destructive insects that attack the foliage of shade trees early in the season, are the canker worms or measuring worms. If not controlled by poison sprays, they may completely defoliate elms, oaks and other shade trees year after year, eventually causing their death. The elm leaf beetle, while not so omnivorous as other common chewing insects, is a pest to be reckoned with where the elm tree population is extensive. They are usually held in check by summer sprays of arsenate of lead solution. With the Japanese beetle it is another story. The adult beetle, which feeds above the ground on almost any green foliage, is able to avoid in some manner the effects of ordinary arsenical sprays. However, arsenate of lead coated with lead-oleate and diluted at the rate of 8 pounds to 100 gallons of water has resulted in fair control in many sections.

To summarize the methods essential for control of leaf-eating insects, the following program should be considered:

1. For tall shade trees, use sprayers with a capacity of 50 to 60 gallons per minute and pressures of 600 to 1,000 pounds per square inch.
2. Use two 8-hour shifts of crews for daylight spraying, in order to make efficient use of expensive machines.
3. Begin by spraying when the earliest larvae or beetles emerge and start feeding.
4. Use oil or casein spreaders to give better coverage and avoid waste.
5. Study the pests and arrange a spray program to fit your conditions. Some well-timed applications will control several different pests.

Traffic Safety in Council-Manager Cities

EDUCATION, enforcement and engineering—in this order of importance—are the three means that cities are using to promote traffic safety, according to a sampling survey of 25 council-manager cities made by the International City Managers' Association. Results of the survey, which appear in the February issue of *Public Management*, show that while six cities include all three points of attack in their campaigns, eight cities are concentrating on the educational phase, three are centering their efforts on stricter enforcement of all traffic laws, and one is emphasizing engineering methods. City managers describe their methods as follows:

Berkeley, Calif., made a special drive through the Police Department to reduce fatalities on its San Pablo Avenue, which had held a 1934 record of 11 deaths. In 1935 this figure was reduced to 6. The reason given by the Police Department for the decrease is that Berkeley judges gave severe penalties to drinken drivers. In 1935 only one drunken driver was involved in a fatal accident.

The City Manager of Cincinnati says that "strict enforcement will probably do more than any other one thing to reduce accidents," but the public must first be educated to see the need for strict enforcement. A reduction of 8 traffic fatalities during the past year he considered the result of more careful driving and lessened speed, through education and enforcement.

In Pampa, Texas, 20 citizen traffic violation reporters turn in violations they observe, and on the basis of this information a courteous letter is mailed to the offender which asks his future cooperation. If no attention is paid to this letter, the violator is brought into court. Efficient schoolboy patrols, education in the schoolrooms, and strict enforcement of all traffic laws, particularly in the school zones, has resulted in no school child's being injured or killed in the past five years.

The Village Manager of Winnetka, Ill., attributes the decrease in number of accidents to the installation of automatic traffic signals after careful engineering study, greater publicity on the causes and results of traffic accidents, and the concentration of police efforts on those violations which are really contributory causes of accidents rather than minor infractions.

Bluefield, W. Va., concentrates on certain sections periodically. In one month a concerted drive was used on a heavily traveled street, with the result that there were no traffic accidents whatever on that street during the month.

A traffic school which any one may attend but which requires attendance of traffic violators, is used in Mason City, Iowa, and Sault Ste. Marie, Mich.

Enlarged Incinerator for Queen City

Cincinnati Completes Program of Improvements

By J. EUGENE ROOT
Director of Public Works, Cincinnati, Ohio

IN 1935 the city of Cincinnati increased the disposal capacity of the central incinerator by 100 tons through changes and additions made in the 300-ton plant, without making any major changes to the building housing the original installation. In addition to incineration at the central plant, provision was made in the original design and construction to use a portion of the heat from the incinerators for generation of steam in two 300-hp water-tube boilers. The steam is used for heating seven buildings in the workhouse property, the municipal automobile repair garage, shops of the Highway Maintenance Division, and the garage of the Waste Collection Division, all of which are located in this central area of the city.

In addition to the central plant of 400-ton capacity, the city operates two 100-ton plants located in opposite districts from the main plant. The three plants were first placed in operation June 1, 1931, at which time a contract for collection and disposal of garbage alone expired and the city took over the service. For many years the city had collected and disposed of other municipal wastes except garbage. When the city assumed the collection and disposal of garbage, the householder was required to wrap these wastes in paper, or to place them in paper or box containers. During the summer season two regular weekly collections from residential areas are maintained, and during the winter season one regular weekly collection is made. In the downtown area regular daily collection at night is maintained. During the summer months the incinerators are each operated on the basis of three 8-hour shifts: during the winter two 8-hour shifts at the central plant and one 8-hour shift at the two outlying 100-ton plants are operated. The fact that on many days during the summer season the rated capacity of the original 300-ton plant was exceeded by 50 per cent and the full capacity of the 100-ton outlying plants was reached, and at times exceeded, prompted a study and plans for changes and additions to the 300-ton plant.

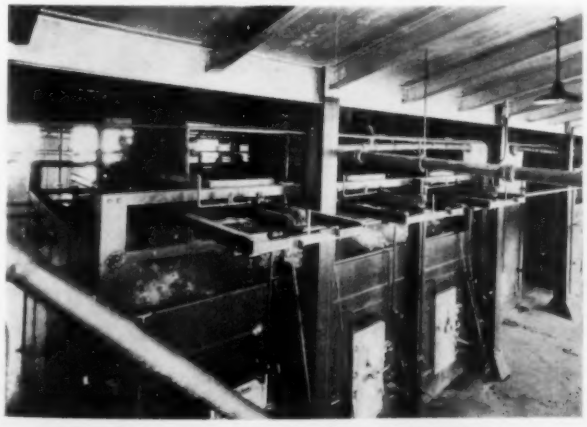
The major changes apparent in the exterior of the plant are the construction of a second chimney and a clinker and ash bin. The entrance ramp leading to the unloading section of the building, and the ramp for leaving the plant, remain the same. The central or second story of the building is the charging floor, and the ground or first story is the stoking floor. Charging and stoking are done manually by workhouse inmates. The boilers for steam generation are on the first floor of the front section of the building near the stack, and the incinerators are in the rear of the building.

The original installation for waste incineration consisted of three 100-ton units. One unit was designed and constructed to operate independently and the other two 100-ton units were designed and constructed to operate as a 200-ton unit. The plant could therefore be operated as a 100-ton plant, a 200-ton plant, or a 300-ton plant, and in each case, when so operated, could furnish heat to either or both boilers for generation of steam for heating purposes.

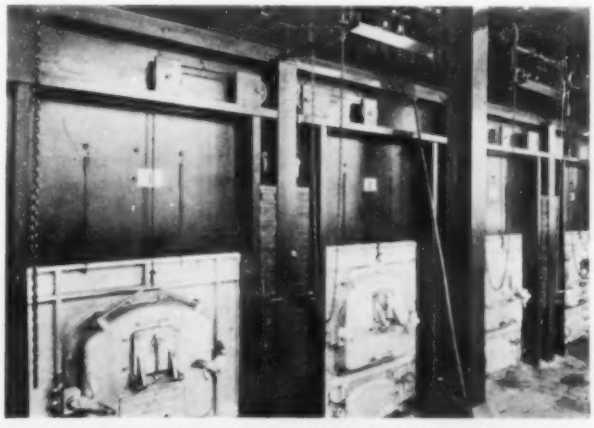
The essential problem confronting the city was to increase the plant capacity for incineration from 300 tons to 400 tons. To assist the city in the solution of this problem, Fosdick & Hilmer, consulting engineers, were engaged, and four possible schemes were developed:

First: To leave the three incinerator units as they were, and operate generally as originally installed, except for flue changes as required for an additional stack, and by using the extreme right end of the present building for the extra independent 100-ton unit, and the rearrangement of the air, water and other mechanical equipment housed in the right end of the building. Under this scheme the consulting engineers estimated the cost to be $132,327.00.

Second: To extend, by an addition, the right end of the building by an amount necessary to accommodate the additional 100-ton unit, the addition to house the air, water and other mechanical equipment, and also an additional stack and the necessary flue changes. Under this scheme the estimate was $151,252.00.



THE OLD 100-TON UNIT BEFORE IMPROVEMENT



THE NEW 100-TON INCINERATOR INSTALLED

4-Wheel-Drive AUTOCARS

Manhandle Snow

Where 2-wheel-drive trucks must back off and hit snow drifts again and again, the Autocar 4-wheel-drive walks in and shoves them steadily aside. That is why 4-wheel-drive Autocars are clearing this winter's heavy snows from many streets and state and county roads throughout the northern tier of states. . . . The tremendous strength of 4-wheel-drive Autocars is due to their complete coordination—they are not assembled, but are the product of a manufacturer of heavy duty trucks exclusively. Autocar engineering and design unite engine, transmission and rear axle into one mighty unit, with no weak link in the chain of power. The front-axle drive on these Autocars can be easily disconnected, permitting rear-drive operation for any normal hauling work. Discuss their performance figures and economy with the Manager of the nearest Autocar Branch, or, if more convenient, write direct to . . .

AUTOCAR TRUCKS

THE AUTOCAR COMPANY, ARDMORE, PENNSYLVANIA

Third: To add an extra 100-ton unit to the present 100-ton unit so that the plant would operate as two 200-ton units, and each 200-ton unit be independently connected to a stack; also to provide an extra boiler for steam generation and coal- and ash-handling equipment; with only interior changes to the present building. This scheme was estimated to cost $125,378.00.

Fourth: To remove the single 100-ton unit and to replace it with a new and more compact 200-ton unit, an additional stack with complete revamping of flues, relocation of one of the steam boilers, an additional new boiler for stand-by service and coal fuel used only, coal- and ash-handling equipment, and with only interior building changes. This scheme was estimated to cost $125,013.00.

The city adopted Scheme 4, in view of the fact that it provided additional plant facilities for the generation of steam, a more compact and economical incinerator operation, and the least amount of structural changes to the present building, although it did require scrapping a 100-ton incinerator unit which had been in service for only four seasons. Many parts and accessories, however, of the dismantled 100-ton single unit can be used for repairs and replacements to the original 200-ton combined units.

Plans and specifications for the alterations and additions to the central incinerator were subdivided and classified for bidding under twelve items. The city received bids in March, 1935. After the first advertisement for bids it developed that the boiler and stoker industries were prevented from bidding on the boiler item and the stoker item, since the NRA Code under which these industries were then operating prevented any member of the industry from paying for plans and specifications—$2.00 in this case. While members of the boiler and stoker industries did not submit proposals, the city did receive proposals from contractors on these two items. The work under the twelve items was done by the following contractors:

1.—New incinerator and flues; The Pittsburgh-Des Moines Steel Co., Pittsburgh
2.—Radial brick chimney; Alphons Custodis Chimney Co., Chicago
3.—Sheet metal work, induced draft fan and boiler breeching; Breese Bros., Cincinnati
4.—New water-tube boilers and moving present boiler No. 1; Henry Niemes, Inc., Cincinnati
5.—Stokers for new boiler and reset present boiler No. 1; Henry Niemes, Inc., Cincinnati
6.—Brick settings for new boiler and reset boiler No. 1; Rust Engineering Co., Pittsburgh
7.—Power piping changes and additions; Geerin Bros., Cincinnati
8.—Steam turbines (10 hp); D. W. Sullivan Electric Co., Cincinnati
Steam turbines (30 hp); General Electric Co., Cincinnati Branch
9.—Coal-handling system; Columbus Conveyor Co., Columbus, Ohio
10.—Plumbing work; The Thos. J. Dyer Co., Cincinnati
11.—Pipe covering and insulation; Johns-Manville Sales Corp., Cincinnati Branch
12.—Miscellaneous building changes; Meyer-Hecht Co., Cincinnati

Part of the work under Contract No. 4 consisted in moving the existing waste heat boilers to another location and attaching them to the outlet flue from the combustion chamber of the new 200-ton furnace unit. Contract No. 1 included the revamping of the existing preheaters so that they could be used without passing any gases through the boilers, as had heretofore been necessary. By careful utilization of the space available, it was found impossible to install a 200-ton furnace as a single unit and yet afford sufficient operating clearances around the furnace and provide access to various portions of the furnace and stoking room as well. The furnace was directly connected to the new stack. Contract No. 1 also covered the installation of all of the furnace proper together with its necessary foundations, installation of the combustion chamber and connecting flues from the combustion chamber to the old existing manifold flue, and into the waste heat boiler in its new location, as well as the relocation of

THE NEW CHIMNEY, AT THE RIGHT, A PART OF THE WORK WHICH CONVERTED THE PLANT TO A 400-TON INCINERATOR

the preheating connections so that they could be utilized independently of either of the waste heat boilers. Full damper control is provided to take care of the proper disposition of the gases through the various channels and in varied amount as desirable or required.

The Pittsburgh-Des Moines furnace installed is said to be the largest single-unit, high-temperature refuse incinerator in operation in the United States today. It is provided with six cells and a preheated air supply from one existing preheater after the proper rearrangement of the air ducts. Each cell is equipped with its own individually operated ash hopper discharging into the ash tunnel previously constructed. Each cell is provided with a hand-operated sliding charging gate, and the container is fitted into the existing building with comparatively few minor structural changes in order to give proper clearances for the installation of the new furnace unit. All these structural changes in the building were handled by the contractor. On a 24-hour test this furnace consumed 284 tons of refuse from an empty furnace to an empty furnace.

The contracts were let and work started about April 1. Owing to the cooperation of the several contractors, the revamped plant was ready to be placed in service the latter part of June, or just at the beginning of the summer season's increased load.

The total cost for the alterations and changes, based on the contract prices and extras allowed for minor changes made after the contracts were let, was $122,814, or $2,200 under the engineer's estimate. The city did not avail itself of PWA participation on this particular project.

The Superintendent of the Waste Collection Division is John R. Manion, and of Incinerator Operations, Anthony M. Sauer. The alterations and changes were made under the supervision of John F. Porter, Superintendent of Property Maintenance.

TIRE TORTURE NEVER STOPS-

Proves Value of New Goodrich Invention

The tires never even get a chance to cool off. It's load up and drive—load up and drive—24 hours a day, seven days in the week.

This huge truck hauls gold concentrate from the Big Canyon Mine near Placerville, California, to Stockton, 100 miles away. With the price of gold high, mines work overtime, the metal must get to market in a hurry.

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So valuable is the truck, the owners, the United Motor Transport, keep a new Diesel engine in reserve, ready and waiting for instant replacement. They can't take chances on tires either. Schedules are fast. Roads are rocky. Curves are sharp. So every tire on the job is a Triple Protected Silvertown—built for just such heavy-duty service as this.

Tires Triple Protected

The new Silvertowns actually check 80% of premature failures! A revolutionary invention built into the sidewall guards against blow-outs and road delays. This is the tire that's being used on the world's toughest hauling jobs. If it stands up under that kind of punishment, surely it will do a better job for you, too. Start checking up now.

Find out more about the biggest tire development in years—the costly invention that is saving every user money—yet does not cost truckers one cent extra.

HOW TRIPLE PROTECTION WORKS

1 PLYFLEX—a *new*, tough, sturdy rubber material with greater resistance to stretch. A layer of Plyflex in the sidewall prevents ply separation—distributes stresses—checks local weakness.

2 PLY-LOCK—the new Goodrich way of *locking* the plies about the bead. Anchoring them in place. Positive protection against the short plies tearing loose above the bead.

3 100% FULL-FLOATING CORD—Each cord is surrounded by rubber. With ordinary cross-woven fabric, when the cords touch each other, they rub—get hot—break. In Silvertowns, there are no cross cords. No friction.

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Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

Automatic Sewage-Treatment Plant on New Jersey Shore at Asbury Park

NOTABLE as one of the few sewage-treatment plant installations of recent months constructed as a straight municipal project without the aid of Federal funds, the new plant at Asbury Park, N. J., replaces a greatly overtaxed plant. The settling tanks of the old treatment works had become little more than septic tanks when the city decided to renovate them. Action was almost imperative, for danger of pollution from the overloaded effluent lines was great. Accordingly, early in 1935 the city laid its plan for an entirely new disposal system adequate to meet the needs of the city for years to come.

The new plant was entirely underground, except for a small, attractively designed pump house, and one would never suspect that the lawns bordered by geranium beds really cover an elaborate gallery filled with pipes and machinery. The plant lies beneath the parkway between the boardwalk and the roadway adjacent, and only a few yards from the beach. It is entirely automatic in operation and requires the services of but one man to maintain it and operate it.

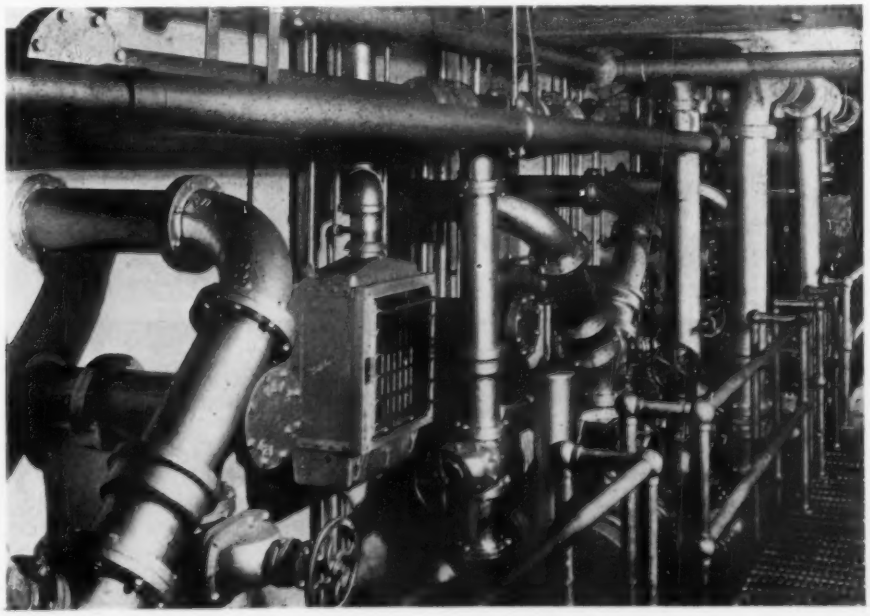
The capacity of the plant is nearly 3,000,000 gallons per day. In the winter during cold weather and when there is not much tourist trade, the daily flow is about 1,200,000 gallons. In the summer the load amounts to 2,200,000 gallons daily during the week, and 2,700,000 gallons on week-ends.

The raw sewage flows to a sump well from a 24-inch interceptor through a remote-controlled valve. Suitable piping from the sump equalizes the pressure in a float chamber which actuates a selector switch leading to the motor pumps. There are four of these, two 15-horsepower and two 5-horsepower, and either or all may be operated according to the level of sewage in the sump. As the level rises or lowers in the sump, it causes the float-chamber level to rise and lower, and this automatically cuts in or cuts out the various pumps.

From the sump, the pumps force the sewage to the settling tanks beneath the parkway lawn. On the way it passes through a tee, both arms of which are equipped with electrically operated remote-controlled valves. When, as in a storm, the tide rises to a point where the settling tanks will not operate by gravity, the valve in the branch to the tanks is automatically closed, and the one to an emergency outfall is opened. This permits the sewage to be pumped directly through the outfall to the ocean.

The tanks, of which there are four, are rectangular and are equipped with Link-Belt scrapers so arranged that the sludge is scraped along the bottom and deposited in a hopper, from which the sludge pumps carry it to the digesters. On its return trip, the scrapers act as grease removers and carry the grease and scum to the grease troughs.

The new plant was designed by Remington, Vosbury and Goff, consulting engineers, Camden, N. J., and was built by Thomas Procter, Inc., of Long Branch, N. J., under the supervision of the City Engineer of Asbury Park, and the State Board of Health. The electrical equipment, including remote-controlled valves, was installed by the Cutler-Hammer Co., the pumps by Fairbanks, Morse & Co., and the scrapers by the Link-Belt Co. The large amount of cast iron pipe, bell-and-flange, bell-and-spigot, and flange-and-spigot lengths, as well as the many specials, special wyes, special tees and special bends, were supplied by the United States Pipe and Foundry Co.



THE PIPE GALLERY OF THE NEW SEWAGE PLANT AT ASBURY PARK, N. J., IS A VERY INTRICATE AFFAIR

"COMMERCIAL"

HYDRAULIC HOISTS AND DUMP BODIES

The telescopic hoist, pioneered by COMMERCIAL, adequately fulfills all requirements of *quick action, easy control* and *absolute reliability.*

COMMERCIAL has helped many states and municipalities in making specifications on hydraulic hoist equipment.

Write for literature and prices.

New York City, Department of Sanitation, as pictured on cover. Telescopic Hoist and Hydraulically-operated Tail Gate by "COMMERCIAL." Body by Fitzgibbon & Crisp, Trenton, N. J. Chassis by Autocar.

Tuscarora, N. Y.—Rear Dumping

This side dumping model, used by the City of Cincinnati Waste Collection Department, is particularly adapted for use on narrow streets.

Tuscarora, N. Y.—Side Dumping

Fully enclosed model for sanitary garbage collection—low loading height, hydraulically-operated tail gate.

THE COMMERCIAL SHEARING & STAMPING CO., Youngstown, Ohio

Work-Relief Paving Costs Analyzed

By W. E. SHEDDAN
City Engineer, Jacksonville, Fla.

THE city of Jacksonville has used no relief labor in its general maintenance program for streets. We did put through one paving project in 1935, a 7-inch concrete street, 40 feet wide and about 6,300 feet in length. On this project the city supplied a portion of the materials, all the equipment, the foremen and supervision, and the relief organization supplied all the common labor. A good portion of the materials had been purchased on an old CWA set-up. This project was carried out very satisfactorily, and the cost, including the actual amount paid out for relief labor by the Federal Bureau, was about what the job would have cost if done on a contract basis. The cost was $80,110.71, which we have broken down in the table below to show segregated costs, costs per square yard, and costs for materials, labor and equipment.

Materials paid for by CWA	$44,988.75	
Labor paid for by FERA	12,780.06	
Total paid for by CWA and FERA		$57,768.81—72%
Material paid for by city	$3,210.64	
Skilled labor paid for by city	8,367.80	
Equipment purchased and rented by city	10,763.46	
Total cost to city		22,341.90—28%
Total cost of payment		$80,110.71
On regular ⅓-⅔ basis, city's part would have been:		
⅓ total cost	$26,703.57	
City's park frontage	1,630.94	
Total	$28,334.51	
Actual cost to city	22,341.90	
Difference in favor of city	$5,992.61	

VARIOUS COSTS PER SQUARE YARD

Item	City	FERA (CWA)	Total
Materials	$0.1045715	$1.4652970	$1.5698685
Labor:			
Plant	.0711824	.0835021	.1546845
Street	.1607409	.3327483	.4934892
Truck drivers	.0406184	.....	.0406184
Total	.2725417	.4162504	.6887921
Equipment:			
Trucks purchased	.1790822	.....	.1790822
Truck operation and maintenance	.0346711	.....	.0346711
Rental of trucks, roller, plant, etc.	.1368158	.....	.1368158
Total	.3505691	.....	.3505691
Grand total	$0.7276823	$1.8815474	$2.6092297

TOTAL COSTS

Item	City	FERA (CWA)	Total
Materials	$3,210.64	$44,988.75	$48,199.39
Labor:			
Plant	2,185.50	2,563.75	4,749.25
Street	4,935.20	10,216.31	15,151.51
Truck drivers	1,247.10	.....	1,247.10
Total	$8,367.80	$12,780.06	$21,147.86
Equipment:			
Trucks purchased	$5,498.33	.....	$5,498.33
Truck operation and maintenance	1,064.50	.....	1,064.50
Rental of trucks, roller, plant, etc.	4,200.63	.....	4,200.63
Total	$10,763.46	.....	$10,763.46
Grand total	$22,341.90	.....	$80,110.71

It will be noted that the cost of this project to the city is only 28 per cent of the total cost of the job, which is considerably less than the cost to the city if the paving had been done on the ordinary procedure of one-third city and two-thirds abutting property owners.

On the 1935-36 WPA program, we are planning to relay some of the old brick-on-sand streets in the city. As a matter of fact, we have under way at the present time a project which calls for the re-laying of approximately 35,000 square yards of this type of paving, and it is progressing very satisfactorily. The city is purchasing about 50 per cent of the bitumen used as filler between the brick and is supplying the equipment and engineering supervision. WPA is supplying the foremen and all labor. We have not as yet been able to figure out the actual cost of this work in order to get a comparison of the cost with the way the work is being done, or to contrast it with our previous experience on contract work.

When Cities Hire Engineers

WHEN an industry wishes to fill a staff vacancy, it searches for the best man it can afford to employ. When a city needs an engineer, it too frequently narrows its field of applicants to those who can prove local residence. This archaic point of view, says Frank W. Herring, Editor of the *Public Works Engineers News Letter*, official publication of the American Society of Municipal Engineers and the International Association of Public Works Officials, must be discarded if cities are to get the best engineering services.

Although the spoils system of recruiting government personnel has been publicly discredited, appointment of "home-town boys for home-town jobs" still persists, Mr. Herring points out. This "parochialism" is "wrecking the administration of local government." It must be rooted out of personnel selection methods, he emphasizes, if we are to hope for the greatest advancement in the administration of public works activities, since it is "of little use for engineers to train in special problems of public works if they can get jobs only in their home cities."

In the public works field, Mr. Herring says, promising engineers must be considered eligible for engagement by a municipality anywhere in the United States. What the engineers of a given community might lose through the increased competition for local jobs, they would more than regain through the widened opportunities they would have for appointment in some other city.

Basing Insurance Rates on Fire Losses

LOW first-loss records and excellence of fire-fighting equipment and methods are being rewarded in Texas cities by lowered fire-insurance premiums. In this respect Texas is unique among the 48 states, according to Harold A. Stone, of the New Orleans Governmental Research Bureau.

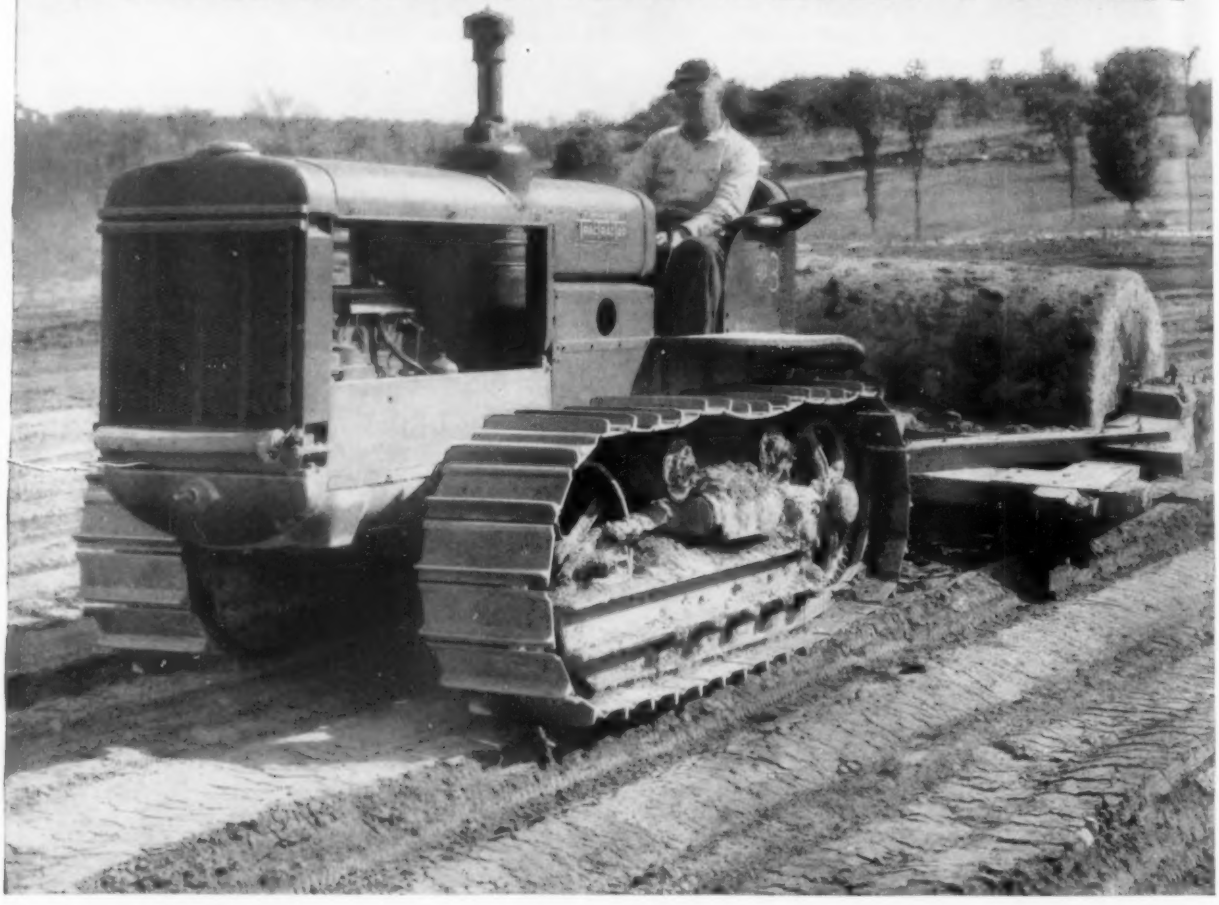
In all states other than Texas, writes Mr. Stone in the January issue of *Public Management*, magazine of the International City Managers' Association, the National Board of Fire Underwriters rates cities without considering that low fire losses and improved fire defenses constitute proper reasons for lowering insurance costs. The Texas Fire Insurance Department establishes the key or base rate upon the city's ability to cope with fires.

Cities whose water supplies, standpipes, main pressures, alarm systems, etc., are below standard are charged for such deficiencies—two cents for a fire-alarm system 40 per cent deficient; four cents for having wood shingle roofs on more than three-fourths of the buildings, etc. Adequacy of equipment and methods appear as percentage credits. The sum of the percentages is multiplied by the total charges, and the result, subtracted from the charges, gives the rate.

If a city plans to make an improvement, the reduction it may expect in its key rate can be ascertained beforehand. During the past twelve months several towns building water-supply systems with PWA funds were told how much their rates would be reduced before the construction was decided upon.

The second unique feature of the Texas plan is consideration of the fire loss experience of a city in determining the size of the insurance premium. If losses are high, individual premiums on each risk in the town are increased, and if losses are low, the premiums are reduced.

A Wealth of Experience Back of
INTERNATIONAL HARVESTER POWER



An International Harvester T-40 TracTracTor pulling an 8-ton concrete roller on top of the East Barre rolled-earth dam near Waterbury, Vt. This is one of the new flood-control dams being built across the Winooski river. Four TracTracTors were used on this dam.

•

The International Harvester line of industrial power (gasoline and Diesel) includes TracTracTors, wheel-type tractors, stationary power units from 12 h. p. to 100 h. p., and 1½ to 5 h. p. engines for light-duty service.

INTERNATIONAL HARVESTER Industrial Power—product of the world's largest tractor builder—reflects the valuable experience this organization has gained through its long and close association with you engineers, contractors, road builders, public officials, and other users of heavy-duty power.

Take the TracTracTor for example. In designing this tractor, International Harvester put onto the market the *most accessible, most easily serviced* crawler. Steering clutches and brakes can be inspected, adjusted, or replaced through rear cover plates without disturbing the tracks, track frames, or driving sprockets. And working parts are thoroughly protected against entrance of abrasive materials by the effective use of self-adjusting triple dust seals.

Your best investment in industrial power is International Harvester. The nearest industrial dealer or company-owned branch is ready to serve you well.

See them about a demonstration.

INTERNATIONAL HARVESTER COMPANY
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INTERNATIONAL HARVESTER

Financing Sewage Treatment at Ann Arbor

By GEORGE H. SANDENBURGH
City Engineer, Ann Arbor, Mich.

IT is expected that Ann Arbor's new sewage-treatment plant will be completed by November 1, 1936. The city began to think of sewage treatment away back in 1915. The following year a series of tests were run on the waters of the Huron River between Ann Arbor and Ypsilanti. These tests showed contamination. The subject was relegated to the background during the war period and did not become active again until 1924, when property owners, below the city, petitioned the Common Council to remove the city's sewage from the river.

In 1926, the present treatment-plant site, of 33 acres, was purchased and the city government at that time was favorable to building a plant. The necessary funds, however, were not available. No further definite action was taken until 1932, when the matter was revived as a work relief project. In April, 1933, the voters authorized the borrowing of $550,000 from the Reconstruction Finance Corporation. In May of the same year, the charter was amended to provide for a sewage service charge.

Financing by Sewer Rentals

Under the provisions of the National Industrial Recovery Act of 1933, an application for a loan and grant of $650,000 was made to the Public Works Administration for the construction of a sewage-treatment plant and down-river sewer. The loan and grant were approved by PWA in October, 1933, but as the collateral offered was sewage revenue bonds, the PWA would not advance any funds until the validity of the Michigan Revenue Bond Act had been approved by the State Supreme Court. The city instituted suit, and an opinion declaring the Act valid was rendered on June 4, 1934. Shortly after this, a revised loan and grant agreement was approved. Funds in the amount of $157,500 have been received.

Work on plans, specifications and estimates started on October 1, 1934. Six contracts for equipment, one for a bridge and the general contract, amounting to $405,994, have been awarded. The general contract, amounting to $301,885, was awarded to the Owen-Ames-Kimball Co., of Grand Rapids, Mich., and work started October 2, 1935.

Activated Sludge Process

The plant, as designed, calls for complete treatment of the sewage by means of the activated sludge process, and has a designed capacity of 4.5 million gallons per day.

By constructing the plant as a PWA project, and the down-river sewer under CWA, FERA and a work relief project, the city has saved approximately $350,000.

Ayres, Lewis, Norris & May, and Shoecraft, Drury & McNamee are the consulting engineers.

When Selecting or Accepting Park Land

By MARKLEY STEVENSON
National Park Service

WE find good park land used for building purposes, and vice versa. We can see many instances where an attempt has been made to provide park facilities of one kind or another on land which is, to say the least, ill suited to the purpose. We can find many examples also wherein the fullest beauty and effectiveness of a park have been blocked by the arbitrary lines of a political subdivision cutting across a natural landscape unit.

I don't feel that we can lay any of these difficulties to the inherent "cussedness" of the landscape. Rather, the fault is ours for not giving sufficient thought to the kind of land we should have for parks of various kinds.

This may be due in part to a statement, first made some years ago and still true, to the effect that, in many instances, land which is not suitable for any other purpose may be used very successfully for park purposes. The qualifying phrase "in many instances" seems to have been forgotten, with the result that the impression has been created that *all* land which is not good for anything else can be made into fine parks. Nothing, of course, could be more misleading. In part, these difficulties may be laid at the door of the benevolent citizen who, to escape paying taxes on some utterly worthless land, presents it to his city for a park, and the city authorities, feeling that they can't look a gift horse in the mouth, particularly when there is an opportunity to acquire some needed "park" land, usually accept the gift without question. To inquire whether the land is well adapted for park purposes or not is usually "not done." By this I do not wish to be understood as implying that *all* gifts of park lands are of this nature. Many, perhaps most, of such gifts are, I believe, excellent in every way, but the conditions I have described are true in too many cases. So many, in fact, that a warning at this time seems to me to be timely.

It has been my experience that more parks fail because not enough consideration is given to the question of site, than for any other single reason. After all, shouldn't ordinary common sense tell us that we should use all the wisdom at our command in selecting the location for a facility the development cost of which may run into thousands of dollars, and which is intended to serve the needs of our community for generations?

If we set out to build a town hall, I'm sure we wouldn't accept all the brickbats that were offered free nor buy all the odds and ends of building material in town for use in the building. We would buy the best material we could afford. Under ordinary circumstances, a park will serve the people two or three times as long as a town hall. Therefore, how much more important it is that we should secure the best land for the purpose in each case and be satisfied with nothing less.

—From the monthly bulletin, *Pennsylvania Planning and Zoning*, for January, 1936.

IT is as wasteful to build roads that are too good as it is to build roads not good enough. Too much expensive construction results in too little pavement, and a neglected obligation to taxpayers and motorists. Tarvia roads can be matched to the traffic they must bear. Initial cost is low, and the roads may easily be widened and strengthened as traffic increases—without discarding the original investment and without interrupting traffic.

THE TECHNICAL SERVICE BUREAU of The Barrett Company invites your consultation with its technically trained staff, without cost or obligation. Address The Technical Service Bureau, The Barrett Company, 40 Rector St., New York.

1936

Barrett

TARVIA

GOOD ROADS AT LOW COST

Kennedy Road, near Unionville, York County, Ontario, Canada. Tarvia-built, 1922, and as completely satisfactory today, for 1936 automobiles, as it was the year it was built.

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Do you mention THE AMERICAN CITY? Please do.

Forward Steps

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

A Backward Look at a Forward Step

LEBANON, PA. — This conservative Pennsylvania community has been carried through several nerve-racking years with minimum economic damage, owing to an intelligent and progressive policy of civic service and industrial analysis and development.

Entrusted to a strongly organized Chamber of Commerce, the work of encouraging existing industries and attracting new ones was based on an intensive and constant study of local conditions. A day-to-day inventory of what the community had to offer industries in the way of labor supply, transportation facilities, good housing—both industrial and individual, and routine attention to "community atmosphere," have become fixed elements of the city's effort. What kind of industries would fit in Lebanon, what kind wouldn't; what industries could be absorbed locally without disrupting those already there, what kind couldn't—these are items of prime consideration.

Lebanon now enjoys an annual income of a million dollars a year which presumably it would otherwise not have had. Looking backward to the first year (1926) of this well-founded policy, we find that the first two new industries brought into the city wages of $480,000, or 7 per cent of the total industrial payroll. In 1930 newly created wages reached $1,095,000, and assumed a proportion of importance in the community which served to lessen materially the shock of depression for Lebanon, for it was in that year that total industrial payrolls began to decrease sharply, to continue a marked decline until the end of 1932. Within the same period the wages of new industries mounted constantly, becoming in 1932 $1,115,000, or 39 per cent of the whole industrial wage payment of the community. In 1934, continuing to mount, newly created wage payments amounted to $1,269,000, or 32 per cent of Lebanon's aggregate industrial wage, which increased to $3,896,000 from the previous year. And in 1935 approximately $1,500,000 was paid out in wages by these new industries out of a total wage payment for all industries in Lebanon of slightly less than $4,000,000. In addition to the wage payments, new industries spend much in the community incident to the purchase of supplies, salaries, etc., so that the total value of these new industries in Lebanon reaches over a million dollars a year.

A typical illustration of what the citizens are doing in salvaging resources is shown in one of the accompanying illustrations. An abandoned schoolhouse was converted into excellent factory floor space suitable for any light manufacturing, thus serving the dual purpose of providing employment and beautifying the neighborhood. The other photograph gives an example of the kind of factory building now being erected in Lebanon. This one, containing 50,000 square feet of floor space, is considered a fine instance of modern mill construction. It was financed, and is owned, by local residents, who lease it to an employer of almost 400 people.

EDWIN S. SOWERS, 2o.

AN EXAMPLE OF MODERN MILL CONSTRUCTION IN LEBANON

ABANDONED SCHOOLHOUSE IN LEBANON, PA., SALVAGED FOR FACTORY FLOOR SPACE

Roadside Beautification As a Club Project

SUPERIOR, WIS.—How can highway departments beautify the roads within their state borders with no funds available for that purpose?

M. W. Torkelson, Director of the Regional Planning Bureau, a division of the Wisconsin Highway Department, has the answer. His plan embraces a new idea of cooperation between the state planning bureau and civic and fraternal groups of various communities interested in practical highway esthetics.

At slight, if any, cost to these groups or to the Highway Department itself, roadside beautification parks may be developed as a club project, an outline of the Torkelson plan discloses, and the expense "scarcely noticed" if spread over a five-year period. Primarily, the plan hinges on some civic group of a given locality being responsible for promotion of the miniature scenic gardens and maintaining their annual growth and development in the name of the organization sponsoring it. Initial plantings in flowers, shrubs or trees would be secured from Federal or state conservation laboratories which maintain this service, if not free, at least on a cost basis. Addition of a vine trellis, pergola, rustic seats and bridges and possibly a fountain or rock garden would complete the picture.

First in the field to adopt the plan, it was announced by Mr. Torkelson, is the fraternal order of United Commercial Travelers, which proposes early this spring to start development of one of

"STOP and GO" driving needs CONCRETE

Since 1931, Indianapolis has forged steadily ahead toward the completion of a farsighted program of street modernization. Over 250,000 square yards of new concrete resurfacing and widening are now in service.

TRAFFIC on streets such as this is measured in millions of car miles annually—and millions of car stops. Time after time every motorist stops and starts in response to signal lights, stop signs, traffic interruptions and emergencies. The ability to make these stops swiftly, surely, with least possible skidding or slipping, is an essential of safety.

Concrete streets have a uniformly *gritty surface* that offers maximum traction under any weather conditions. Tires grip and hold; skidding is reduced to a minimum.

The even contour of concrete streets adds further to their safety, and concrete's light-gray matte surface improves visibility at night.

A lift to your safety program is the priceless "plus" value of concrete—the pavement that costs the least to build and maintain for a given load carrying capacity—the pavement motorists and taxpayers overwhelmingly prefer.

PORTLAND CEMENT ASSOCIATION

Dept. A3-4, 33 W. Grand Ave., Chicago, Ill.

During March we hope you will remember to mention THE AMERICAN CITY

these projects in each of the 25 cities of Wisconsin in which the Order is represented by a council.

Already a start has been made in the city of Manitowoc, home of A. C. Stangel, Grand Counselor of the Wisconsin jurisdiction. In the triangle of diverging highway arterials leading southward from the city toward Milwaukee, a landscape gardener has laid out the emblem of the Order in the form of crescent moon or rainbow. This beauty-spot, Mr. Stangel has informed the Regional Planning Bureau, is to serve as a pattern for all the other Council units in the state.

HARRY E. BABCOCK.

City-Owned and Unified Natural Resources

EXCELSIOR SPRINGS, MO—A new undertaking in municipal ownership was recently initiated when the city of Excelsior Springs purchased and unified the natural resources of this Mid-Western resort. The purchasing from individual owners of the important wells and springs has already been accomplished; and construction of the new Hall of Waters, combining health, recreational, industrial, business and civic functions, is now under way.

The citizens of Excelsior Springs, realizing that the only hope of prosperity for their community, with all its potential resources as a health resort, was in united action and a city-owned mineral water system, laid the groundwork in 1933 for such an undertaking. A special act of the Legislature and decisions of the State Supreme Court were required to establish the community's right to develop the mineral springs as a community project, to delegate its authority to a special body, and to convert park property into a revenue-producing unit such as it will be with the sale of the water and charges for the use of its swimming pool and other facilities. When the legality had been assured and the city had sold bonds for its share to the citizens, a grant and loan totaling $647,000 was obtained from the Public Works Administration, in September, 1935.

The PWA loan provided that a firm of management engineers should be employed and represented during the 20-year amortization period provided for the first mortgage revenue bonds issued to PWA. The firm to be awarded this contract was the Thompson & Lichtner Co. of Illinois, with headquarters in Chicago. The Kansas City firm of Keene & Simpson are the architects for the new building, and Black & Veatch, consulting engineers, also of Kansas City, are the contractors for the reconditioning of the wells and the laying of new pipe lines. Contracts were let in December for the first engineering aspects of the twofold program, the reconditioning of the wells and springs and the piping of the different waters, scattered throughout the city, to the site of the Hall of Waters.

The Hall of Waters itself is unusual because of its wide range of uses. The health and recreational features will be the dispensing of the ten principal mineral waters directly from pipes connecting with the sources of supply, a mineral water swimming pool, regulation size, and physio-therapy departments for men and women. The industrial and business uses will include a modern bottling plant, capable of producing 40,000 bottles of Excelsior Springs waters daily, and the offices of The Mineral Water System, a separate entity of the city government established for control and operation. The building will contain the city offices and the Chamber of Commerce.

The building will be in the form of a T with a rounded base. An interesting feature of the exterior will be the imposing tower, rising 100 feet above the ground level. Decorative panels extending nearly the full height will be of structural glass brick, illuminated on the inside with colored lights.

MOSES WOOD, Mayor.

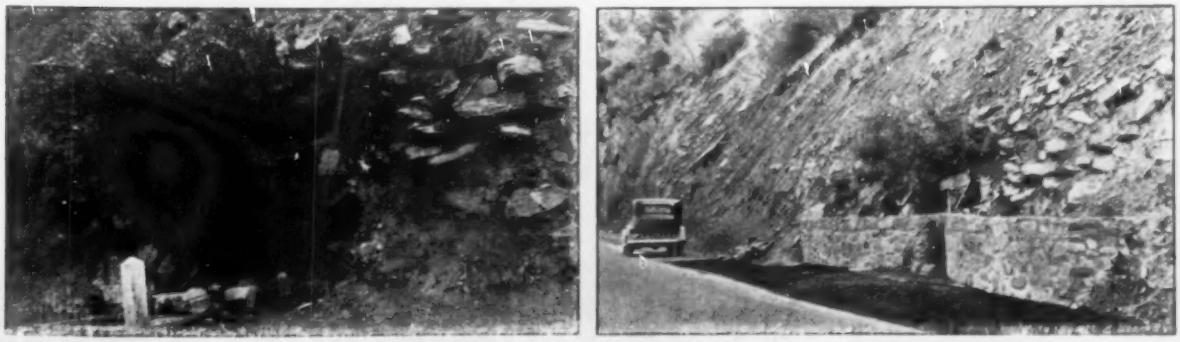
FRONT VIEW OF NEW HALL OF WATERS, EXCELSIOR SPRINGS, MO.

Waterbury Chamber Helps Former Service Men Safeguard Bonus Funds

In a display advertisement appearing February 13 in the *Waterbury American* and the *Waterbury Evening Democrat*, the Chamber of Commerce of Waterbury, Conn., warned former service men that they were likely to receive proposals from many slick "prospectors" for the investment of their bonus funds. The services of the Investigations Department of the Waterbury Chamber of Commerce are offered to all ex-service men without charge.

Reprints of the advertisement are available from the Chamber's Secretary, Frank J. Green.

Roadside Spring in Yosemite National Park — Improved



A highway maintenance crew diverted waste spring water to this new rubble-stone fountain, which has a handy faucet for the convenience of motorists

introducing
a greater GMC value in THE 3-TON range

only $895 CHASSIS F.O.B. PONTIAC

On price alone, or on specifications alone, or on the still sounder basis of its ability to outperform and out-earn this rugged GMC truck is an unequalled value.

Greater Power—Increased horsepower and increased torque for more work . . . in fact a larger engine than ever before in a GMC at this low price . . . efficient valve-in-head design, of course, and many refinements that assure ample power for every demand.

Improved Performance—Engine improvements, transmission improvements, rear axle improvements, refinements throughout the entire truck, assure the kind of performance that will fully satisfy the most exacting truck operators.

Streamlined Appearance—One glance at this GMC 3-ton value for 1936 and ten to one you'll say its advanced streamlined appearance—in the all-steel "helmet top" cab as well as in the chassis—sets it apart as a truly distinctive vehicle.

Driver Appeal—In addition to the many chassis refinements that contribute to the driver's physical and mental comfort there is likewise a roomy, comfortable cab with many conveniences such as advanced features of ventilation, that will improve the efficiency of any driver.

Dual Performance and other money-saving advantages—Throughout this exceptional truck are features that shrewd operators will be quick to value in a dollars-and-cents way. And available also is GMC dual performance rear axle which saves gas, lowers upkeep costs, saves oil, saves time and lessens wear.

½ TO 15 TONS

TIME PAYMENTS AVAILABLE THROUGH OUR OWN YMAC 6% PLAN

General Motors Trucks and Trailers

General Motors Truck Company, Pontiac, Michigan

Clackamas County Demonstrates Planning

CLACKAMAS COUNTY, ORE., with a population of 45,000 scattered over an area of approximately 2,000 square miles, believes in looking ahead as fast and as far as possible. According to Walter H. Blucher, Executive Director of the American Society of Planning Officials, it is "Exhibit A" in the demonstration of what an active county planning agency can do.

In May, 1935, the County Court created the Clackamas County Planning Board. Up to December, 1935, the county received total allotments of $1,893,469 in Federal and state funds for planned projects, which, with a contribution of three-quarters of a million dollars voted by the inhabitants themselves, has resulted in progress many years ahead of normal development.

When the Clackamas County Planning Board presented a report to the Third Pacific Northwest Regional Planning Conference held at Spokane, Wash., recently (February 13-15), these were some of the accomplishments listed:

A constructive, organized road program involving projects totaling nearly $900,000 was established under the provision that all highway construction must be approved by the planning board before it is authorized by the County Court. In this connection a county-wide traffic survey, the only one in the state, was made with relief labor. Nearly 30 miles of farm-to-market roads were selected for improvement with oil-rock, costing the county $50,000 once, but saving $40,000 in annual maintenance expenditures.

Plans for 13 PWA projects, including a new court house, a city hall, and work on nine public schools, costs totaling $1,300,000, which the people voted to finance by bonds.

Plans for 16 WPA projects, costs totaling half a million dollars, including stream measurements, National Youth projects, parks and a county-wide library program.

Land settlement and reforestation studies looking toward best use of land for the support of residents of the county. Investigation of new types of industry which might be brought in.

An apprentice school has been established for the county, and school boards of the three towns in the county have been requested to appropriate money to pay instructors, who will train young people for various vocations.

Work on flood control, testing of farm lands, a survey of underground water reserves for irrigation purposes, drainage projects and a mineral resources survey, are among future items on the long-term plan of the Clackamas Board, which already has compiled a dozen maps showing basic information on these matters. Close cooperation between the Oregon State Planning Board and this local planning board has done much to speed up the various county projects, the Clackamas County Planning Board reports. One important result has been the employment of nearly all relief workers, as well as many non-relief employables.

The views at the right show the progressive improvement of the water and light plant at Wellsville, N. Y., and its surroundings.

Original water and light plant, Wellsville, N. Y., as purchased in 1915

Second expansion of the Wellsville plant, 1932

The present Wellsville plant, from the northwest

WISCONSIN GOES ALLIS-CHALMERS
SNOW BOUND STATE
RELIES ON A-C POWER
IN STORM CRISIS . .
BOX SCORE
THREE WEEKS' SALES
A-C . . . 33 TRACTORS
OTHERS . . 4 TRACTORS
Wisconsin has "gone Allis-Chalmers" in a big way. The same quality features and advantages that make A-C Tractors first choice in Wisconsin . . will enable YOU to handle your job in less time . . at lower cost.

89% OF TRACTORS PURCHASED ARE ALLIS-CHALMERS!

When the real test came—Wisconsin dug out with Allis-Chalmers tractors. This was one of those "old-fashioned" winters—raging blizzards . . . heaviest snowfall in a generation . . . fierce, shifting winds . . . treacherous drifts . . . temperatures down to 52° below. Equipment was taxed to the limit—none but the best could stand the test. It was no time for second-best machinery. That is why Wisconsin public officials specified Allis-Chalmers—33 A-C Tractors during those three trying weeks . . . compared to four units of other makes.

WHEN DEPENDABILITY COUNTS—When highways are blocked, business stops. Milk, foodstuffs and coal cannot go through. Dependable equipment—to keep the roads open—pays for itself many times over.

POWER—It takes real power to buck big drifts. Where trucks and smaller tractors were helpless—A-C's plowed through.

DURABILITY—Less rugged equipment went to the shop for repairs—caused by the stresses and strains of heavy drifts against the plows. Under tests like this—A-C quality proved itself.

INSTANT STARTING—only A-C Controlled Ignition Oil Tractors offer this advantage—instant starting on Diesel fuel oil, regardless of weather.

QUICK MANEUVERING—"Light on its feet" as well as powerful—able to turn on its tracks in close quarters. The operators appreciated this feature in A-C's.

TRACTION—There is no substitute for a track-type tractor when the going is toughest. A-C's have what it takes.

ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE, U. S. A.

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; John Gibala, Vice-Chairman; Donald M. McNeil, Dwight M. McCracken, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, John C. Wrighton, Charles G. Beckenbach, Bruce D. Greenshields, Leslie J. Sorenson, Charles H. Rex, Tracy D. LeMay

Making Money by Saving Lives

By THOMAS H. ALLEN
Police Department, Superior, Wis.

SUPERIOR, WIS., has a population of 37,000, an area of 42 square miles, 183 miles of improved streets, 26 schools, one radio broadcasting station, three daily and two weekly newspapers, and scores of railroad grade crossings. It is situated at the head of Lake Superior directly across the St. Louis River from Duluth, Minn., which has a population of nearly 110,000 persons. Superior, as the gateway to an ideal hunting, fishing, and vacation land, has a much larger volume of through traffic than most cities of similar size.

A survey made by the local Safety Council and the Police Department revealed that for the years of 1932, 1933 and 1934 there was an average of 9 persons killed and 160 persons injured annually in traffic accidents. It showed that most fatal and injury accidents occurred during the hours of late afternoon and early evening on eight different streets and avenues. Week-ends were the most dangerous days for highway users. Pedestrians figured in about 45 per cent of all serious mishaps.

Following analyses of the facts, a definite program of safety activities was adopted by the two bodies, and presented to the City Council, the newspapers, schools, radio station WEBC, and insurance agencies, for general city support.

The 1935 Safety Program

1. Secure $325 from the City Council for activities of the Superior Safety Council.

2. Secure the establishment of a safety bureau within the Police Department, headed by a director of traffic safety who shall be charged with the responsibility of keeping traffic records and of coordinating all safety activities in the community.

3. Continue the safety program in the schools and increase the number of its functions.

4. Cooperate with all safety organizations and with all groups or persons endeavoring to reduce the toll of accidents.

5. Secure as much space from the newspapers, and as much time from the radio station as possible, for the promotion of safety.

6. Stage a huge safety parade and demonstration to arouse community interest in the prevention of accidents.

7. Petition the Governor of Wisconsin to proclaim the first Sunday in June as Wisconsin Safety Day, and to request the President of the United States to designate a National Safety Day.

8. Secure a sufficient number of traffic officers to patrol adequately the streets of Superior and all highways in Douglas County and Wisconsin.

9. Secure a revision of the traffic code so that local regulations will conform with recommended laws.

10. Earn for the city of Superior the title "Safety Capital of America."

How the Program Worked Out

Item 1 was completed, and the money bought a membership in the National Safety Council, prizes and office supplies.

Item 2.—A Safety Bureau was established in the Police Department at a cost of only $50. The Director of Traffic Safety was appointed from the personnel of the traffic squad. He became sales manager of the city's safety program.

Item 3.—The school safety program was broadened to provide a safety training for pupils from the kindergarten through the 12th grade. Four separate yet coordinated school safety organizations became a permanent part of the regular school system. The Superior school safety program is unequaled elsewhere in the United States.

Item 4 was completed.

Item 5 was successful. Stories of the safety program in Superior were printed by the *New York Times, Milwaukee Journal, Christian Science Monitor, Milwaukee Sentinel, Safety Education Magazine, and Public Safety Magazine*. This favorable recognition of the city was an unlooked-for development.

Item 6 was a great success. On Mother's Day the parade was nearly three miles long, the longest in the city's history.

Item 7.—Council No. 333 of the United Commercial Travelers initiated the movement for a Wisconsin Safety Day and a National Safety Day. On March 22, 1935, the Governor of Wisconsin declared that the first Sunday in June should "mark the completion of one year's safety activities and the start of another year's day-by-day campaign against accident."

Item 8 was that part of the program which put the dollars-and-cents angle of traffic safety into tangible form. No success met efforts to establish a state system of highway patrol. The county's only response to the plea for protection consisted of sincere efforts on the part of the sheriff to enforce traffic regulations with the pitifully few man-hours he and his deputies could spare from their other duties for this all-important work.

Two New Policemen Pay a Profit

The City Council authorized Chief Arthur Buchanan to add two more traffic officers to his Department. During the first four months that these men were on the streets they arrested 27 drunken drivers, 13 reckless drivers, 56 speeders, 9 violators of the arterial highway ordinance, and 6 miscellaneous traffic offenders. In addition, they prevented several burglaries, quelled a number of disturbances, removed many drunken pedestrians from the streets, and performed a multitude of other police duties. The arrested parties paid fines totaling $2,552. It cost the city $1,500 to have these two extra officers on the streets.

A total of 896 persons were arrested for traffic offenses by the whole Department at a total cost of $14,013. These offenders paid the sum of $17,165 in court fines and forfeited bails. The cost of traffic enforcement amounted to about 12 per cent of the total expense of the Police Department, the number of traffic arrests amounted to 30 per cent of all Department arrests, and the fines paid were 68 per cent of all court receipts.

The income includes payments by 196 drunken drivers, $10,173; 118 reckless drivers, $3,269; 416 speeders, $3,171; and 76 miscellaneous violators such as over-time parkers, improperly licensed vehicle operators, unlicensed drivers, $129. The Judge found only one person out of 896 not guilty of the charge. All others pleaded guilty or were found guilty after a fair court trial. For every person arrested, 10 others were cautioned by the police. More than 9,000 drivers and pedestrians were warned of their dangerous or illegal use of streets and vehicles. This record speaks for the type of enforcement offered for the protection of residents and visitors.

Speed Limits

Item 9, far from imposing onerous restrictions, included raising speed limits as follows: in business districts, from 15 miles to 23 miles; in residence districts, from 20 to 28 miles; in outlying sections, from 35 to 43 miles. These speed limits made it much easier to enforce 25, 30, and 45 miles an hour restrictions in the various districts.

Item 10 lies in the future. To date, no other city offers a safety program for schools equal to Superior's plan of educating its youth in safety matters. The first school safety textbook in the country was written in Superior.

Above and beyond all matters herein presented, the final result was 3 killed and 123 injured in 1935, as compared with the 1932-4 average of 9 and 160.

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Burroughs plans provide information as to amounts due vendors, purchase orders outstanding, and records of purchases by commodity classification and sources.

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Burroughs offers a machine that prints on the receipt the serial number, tax bill or property description number, date, amount of payment and cashier identification—affording maximum protection to clerk, collector and city.

MAIL THIS COUPON FOR FULL DETAILS ON ANY OR ALL OF THE ABOVE SUBJECTS

Auto Manufacturers Back Highway Safety

THERE is one important distinction between safety work in the industrial and highway fields. We have a certain degree of authority in the case of our own workmen, none with the purchasers of our motor cars. The responsibility for the conduct of drivers on the highways rests with the official enforcement agencies. The automobile industry, or any outside agency, can be useful only to the extent that its activities are coordinated with those of the officers charged with the administration of highway affairs:

1. Making it "smart" to drive safely.
2. Educating drivers on the rules of the road—and
3. Eliminating the unfit and reckless from the highways.

It is our confident belief that this coordinated activity which will be carried on along all fronts constitutes the greatest force for highway accident prevention that has ever been mobilized. It is starting into action right now. The automobile manufacturers are giving it not only their blessing but their honest and earnest cooperation.

PAUL G. HOFFMAN,
President, The Studebaker Corporation.

Police Chiefs Favor Vehicle Inspection

NINETEEN out of 21 police chiefs sending in data on the traffic situation in their cities stated that they are in favor of compulsory motor-vehicle inspection. Two did not express opinions on this measure. Three of the chiefs have first-hand experience with it.

The question was: What is your experience or opinion on compulsory motor-vehicle inspection in your city?

The responses are given below:

"Very excellent. Will decrease motor-vehicle accidents."—E. M. MCSWEENEY, Police Commissioner, Boston, Mass.

"We have no direct experience, but have had personal inspection of the Memphis and Evanston systems by Police Traffic Captain B. B. Smith, Traffic Engineer C. G. Beckenbach, and Chairman of Traffic Commission C. J. Rutland. Results of these investigations are that we favor this measure, and are working to the end of securing it in Texas and in Dallas."—R. L. JONES, Police Chief, Dallas, Texas.

"My opinion is that it is a good thing."—C. G. ECHOLS, Police Chief, Calexico, Calif.

"Compulsory motor-vehicle inspection on a semi-annual basis with inspection performed by Police Department has been in force for 13 months, with very excellent results. Approximately 14,000 cars have now been inspected twice, with about 60 per cent rejected on first trip through, showing a real need for inspection."—DAVID M. BALDWIN, Traffic Engineer, Evanston, Ill.

"I believe that motor-vehicle inspection is very important for safe motor-vehicle operation. Not compulsory here."—JAMES J. SILGEN, Police Chief, Fond du Lac, Wis.

"Compulsory inspection is very important, and we hope to adopt it."—GEORGE F. EISENHUT, Police Chief, Fort Wayne, Ind.

"Our city does not have it. It is a state law here and is a very good thing."—D. L. RUPERT, Police Chief, Huntingdon, Pa.

"Most necessary; need of more rigid inspection."—FRANK B. TITUS, Police Chief, Lansdowne, Pa.

"Should have inspection twice a year on all equipment of autos, which we have."—S. IRVING CHAPMAN, Police Chief, Marblehead, Mass.

"It would be very good."—FLOYD SANJULE, Police Chief, Massena, N. Y.

"I think that a periodical inspection law would be helpful if it were uniform throughout the United States."—HUGO H. HANIG, Police Chief, Merrill, Wis.

"A good idea and should be enforced."—W. B. HUTCHINSON, Chief of Police, Metuchen, N. J.

"The inspection of motor vehicles is very important. It is my belief that if such inspections were compulsory in all states, it would prevent many accidents, and save many lives."—R. E. LAWRENCE, Police Chief, Mount Airy, N. C.

"We approve of it, but have not had experience with it other than brake testing once a year."—HENRY T. COPENHAGEN, Police Chief, Rochester, N. Y.

"I am of the opinion that compulsory motor-vehicle inspection would decrease accidents."—JAMES COUGHLIN, Police Chief, Saranac Lake, N. Y.

"Very good."—J. L. MALONEY, Police Chief, Springfield, Mass.

"We believe the state should have compulsory inspection."—THOMAS CARROLL, Police Chief, Syracuse, N. Y.

"Periodical inspection required by state law in Pennsylvania is an excellent safety feature."—S. M. HOLDEN, Police Chief, Wilmerding, Pa.

Origin of the White Line

THE marking of lines in the middle of a city pavement to indicate restricted areas is as old as the roads of Rome. However, paved roads did not come into vogue until about 1910, with the entirely unique type of traffic which they encouraged.

In the fall of 1919—seven years after the first state paved roads were inaugurated in Illinois, that state began to build improved highways on a big scale, and T. J. Schmitz, of Elgin, suggested to George N. Lamb, then Superintendent of Highways for the northern district of Illinois, that a distinct line be painted along the center line of all improved highways. No doubt at the time this suggestion appeared ridiculous; but in 1922, a stretch of road near Springfield was thus marked by the State Highway Department. Next came this marking on roads at the beginning of curves; then on hills; and finally through the middle of all paved highways in Illinois.

Many highway engineers of other states quickly adopted this center marking, referring to it in their reports as "The Illinois Line." Pennsylvania experimented with the center line in 1921-22, and adopted it in 1924, the same year that Michigan did. Chicago used it in 1923 and inspired Cincinnati to do the same in 1926.

H. G. LAWRENCE,
Secretary, Elgin, Ill., Association of Commerce.

Dat Ole Debbil Speed

By MILLER McCLINTOCK
Director, Bureau of Street Traffic Research, Harvard University

THERE is only one element which has been built into modern motor-car production which many believe to be a potential hazard. That element is speed. It is the most controversial element in the traffic problem today. Any current production vehicle can safely make and maintain speeds in excess of sixty miles per hour under safe conditions. These high potential speeds are an essential part of the efficiency and, indeed, of the safety with which motor vehicles may be operated at lower cruising speed.

Operator Failure a Danger

Unfortunately, safe conditions do not always exist and the failure or inability of an operator to judge his conditions accurately may convert an element of efficiency into one of destruction. This does not mean that any important part of the entire accident problem results from operations at or near maximum speeds. It merely means that any velocity inadequately controlled may be destructive. In fact, by far the great majority of our accidents result from operating speeds which would be considered very nominal under ordinary conditions.

There are, at the present time, two schools of thought regarding the control of speed. Each school is seeking to establish its beliefs as a "standard." One school believes that the proper approach is a mechanical limitation of maximum speeds by means of automatic devices. Without entering into the merits of this thesis, it may be said that the opposing school believes that such mechanical limitations could not have any perceptible effect upon the total accident problem, and that the proposal is a refusal to meet the issue fairly and solve it on constructive grounds which will achieve both safety and continued freedom for the development of the full efficiency of automotive transportation.

Despite the relative perfection with which automobiles are designed and constructed today, there is need for a more serious consideration of methods for the preservation of safety factors through reasonable maintenance. There is no piece of machinery, other perhaps than farm implements, so generally and consistently abused as is the motor car.

Safety Inspection Standard Needed

In our opinion this is due to no small extent to the fact that the American motorist has never been provided with an acceptable set of standards as to what constitutes safe mechanical conditions. It is also our belief that if such acceptable standards are provided, considerations of economy and self-preservation will cause the great bulk of American motorists to give reasonable adherence. It is for this reason that we look with great interest upon the project of the American Standards Association to create "Standards for Safety Inspection of Motor Vehicles."

—From an address before the annual meeting of the American Standards Association.

HARLEY-DAVIDSONS lead the way to TRAFFIC CONTROL

Uniformed officers on motorcycles, riding up and down your streets and highways will secure far better results in controlling traffic than any other method. Statistics prove that violations and accidents decrease in proportion to the increase in the number of motorcycle police.

Equip your traffic squads with 1936 Harley-Davidson Police Motorcycles—to PREVENT recklessness and violations as well as to apprehend those who disregard the law. The new models with marked improvements in design and motor performance, provide speed, fast get-away, great flexibility, ease of handling and parking, and maximum rider comfort. When radio-equipped, they meet every demand for central control and rapid assembly.

Yes, lead the way to better traffic control with Harley-Davidson's great new "74 Twin" and "80 Twin" police models. See your nearby Harley-Davidson Dealer now —or write us for special police literature.

HARLEY-DAVIDSON MOTOR COMPANY
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HARLEY-DAVIDSON
The Police Motorcycle

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning Zoning" City Planning and Zoning"

Zoning and Planning Notes

From Data collected by the Zoning Committee of New York (253 Broadway)

Zoning Ordinance—Maps, Etc.—Notice

ARKANSAS.—*City of Benton v. Phillips*, 88 S. W. 2d, 828 (Supreme Court, December 9, 1935).—Benton is a second-class city. On February 26, 1935, it passed a zoning ordinance, under which it is attempting to prevent Phillips from constructing an ice plant and other business buildings at a given location.

And this Court holds that it cannot prevent such construction. The statute under which the ordinance was passed required that the zoning plan, together with all maps, plats, charts and descriptive matter, should be filed in the office of the City Clerk, and a copy, certified by the City Clerk, filed in the office of the Recorder of the county in which the city is located. The purpose of this provision was to give general notice of the plan, so that suggestions and objections might be made, as well as to acquaint possible purchasers of land affected by it with the use to which such land might be put. Such notice, therefore, is mandatory; and, since the law requiring it has not been complied with, the ordinance is void, and cannot be enforced.

EDITOR'S NOTE.—For other cases in these Notes in regard to notice, see GEORGIA, *Jennings v. Laggs*, November, 1935; CONNECTICUT, *Town of Madison v. Kimberley*, April, 1934; NEW YORK, *Matter of Presser v. Ferris*, November, 1933; NEW YORK, *Incorporated Village of Northport v. Walsh*, August, 1933; LOUISIANA, *State ex rel. Holcombe v. City of Lake Charles*, February, 1933.

Automobiles—"Storing" and "Parking"

NEW YORK.—*People on Complaint of Inspector Dean v. Wolfe*, Magistrates Court of City of New York, reported in *New York Law Journal*, January 30, 1936. —The defendant Wolfe is charged with violating the Zoning Resolution of the City of New York, as amended on June 28, 1935, by "storing and parking more than five automobiles in a business district." Previous to that amendment such storage, only, was forbidden; the amendment making parking also illegal.

For some months before and after June 26, 1936, the defendant operated the business of permitting upward of fifty automobiles to be driven upon the property in question, and allowing them to remain there, for compensation, for varying lengths of time. Cars were driven away and brought back at the owners' will. At times these cars remained without being driven away, at least temporarily, four or five days, or possibly a week. In some cases, month after month, defendant accepted payment for such permission. There was no fence surrounding the plot, and the only structure on it was a small wooden hut which was used as an office.

On July 3, 1935, the defendant was served with a zoning violation order to discontinue unlawful use of the premises, and when that order was not obeyed within ten days, this prosecution was begun.

Defendant's rights after June 28, 1935, may depend upon the legality or illegality of the business as he was conducting it on the premises before that date. If he was *storing* cars before June 28, he was, under the Zoning Resolution, guilty of a misdemeanor and the business was illegal; if he was *parking* cars, the business was legal (*Monument Garage Corporaton v. Levy*, 266 N. Y. 339, reported in these Notes for April, 1935, with editor's note).

On the authority of the Monument Garage case, this Court holds that the defendant was *parking* and not *storing* automobiles, so that, prior to June 28, 1935, the business he was engaged in was legal. There is nothing to indicate that the business of the Monument Garage Corporation, held legal by the highest court in the state of New York, was at all different from the one carried on by this defendant. In the Monument Garage case the Court bases its distinction between storage and parking on the degree of permanency involved; but this Court does not conceive this to be the whole distinction. No further differentiation was necessary in that case, because the first point served the purpose, but the enunciation of that one classification did not directly or indirectly imply that it was the only point of distinction. "To store" is defined in Webster's New International Dictionary as "to deposit in a store, warehouse or other building, for preservation; to warehouse." "To park" is "to bring together in a park or compact body; as to park artillery, wagons, automobiles, etc." Implicit in the meaning of the word "store" is the concept of care and safeguarding of the object stored. The garage operator provides a building; he is a bailee, responsible, within familiar limits, for the safe return to the owner, of vehicles left with him. The defendant in this case, in the conduct of his business, is a mere licensor who for a fee grants a license to the car owner to come upon his land and leave the car "standing" "unattended by a person capable of operating it." No duty of care devolved upon the defendant. In garages cars are moved about by the management to suit its convenience and that of its patrons. On the land of the defendant cars were brought and left together in a compact mass, undisturbed until the respective owners took them away. If, in an outlying section of the city, or outside the city, an individual keeps his automobile on the street in front of his home for a week at a time, he would still be said to be parking his car, not storing it, on the street. The concept of responsible protection against the elements, against theft, and against physical injury, is implicit in the word "storage" and absent from the concept of "parking."

The Court concludes, therefore, that the defendant was operating a field for the parking of automobiles, and so before June 28, 1935, was engaged in a legal business.

The Court comes, then, to the question of the legality of the defendant's acts after June 28, 1935. There can be no question but that the Board of Estimate of the city was authorized by the State Legislature to pass and amend the Zoning Resolution. The application of the amendment of June 28, 1935, to this defendant, however, is contested on two grounds. The first is that it was the intention of the framers of the ordinance that it was not to apply to non-conforming uses; the second, that, even if so intended, it is a violation of the defendant's right not to be deprived of property without due process of law, so to apply it.

In support of this first point, defendant shows that in the enactment of the original Zoning Resolution a saving clause was inserted permitting the continuation of any non-conforming use existing on the day of its enactment, July 25, 1916. Defendant argues that this indicates the spirit of the Resolution, and that non-conforming uses existing at the time amendments are adopted are also intended to be continued. It is a sufficient answer to this to say that the enacting body has not so declared. There are variations in the fact situation giving rise to amendments to the Resolution. A change in the character of a neighborhood may make a change of classification desirable, yet without causing any wish on the part of the Board to disturb existing non-conforming uses. In that case, it would add a saving clause. But if the change it was enacting arose out of a greater or less urgent necessity, affecting the public health or welfare, demanding the elimination of a theretofore permitted use, it would not insert a saving clause. It was not inserted in this case, and the inference is that it was not the intention of the Board to except existing non-conforming uses in this way. In this connection it is contended that the amendment of June 28, 1935, is subject to the general rule of statutory construction that statutes will not be given a retroactive effect. The argument, too, raises the question of intention, inasmuch as it is well within the power of lawmaking bodies to pass retroactive statutes.

There is no merit in this contention, because in this case there is no question

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Location of Test	Los Angeles to New York
Distance Traveled	3511.5 miles
Running Time	129 hours, 24 minutes
Average Speed	27.14 miles per hour
Gasoline Used	308.6 gallons
Gasoline, miles per gallon	11.378
Oil Consumption	2 quarts
Cost of Fuel	$57.59
Cost of Oil	$.67
Fuel and Oil (cost per mile)	$.016
Average cost per ton mile	$.00328
Water Consumption	1 gallon

No mechanical failures

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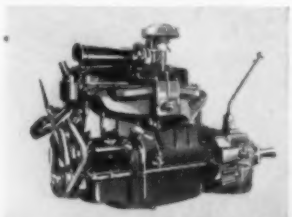

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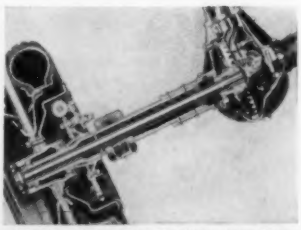

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of retroactive operation. It is not being attempted, for example, to punish the defendant for acts done before the amendment was passed, or to prohibit him from collecting parking fees earned before that time, or to tax him on the basis of business before that time. These are examples of retroactive operation, and as to these it could very well be claimed that no retroactive operation will be favored in the absence of clear intent. The building zone amendment, however, merely operates from the date of enactment, and not before.

We now come to the constitutional question, whether as to the defendant this amendment is in violation of his constitutional rights; and the Court decides that it is a due exercise of the police power, and valid. The right to possess property is not absolute, but every legislative enactment which confers social utility can be justified as an exercise of the police power. There is a greater and a lesser urgency of public need; and a further variability in the nature and quality of property rights possessed by the individual. Rights in property are vested or inchoate, present or prospective, great or small. They are more or less vested, and greater or smaller. There is a gradation from much to little in the quantity of the individual's rights.

Due process of law is the application of reason to the interaction of the two variables described. The reasonableness of any legislation is a function of the degree of social necessity and the quantity of rights involved. Slight social need may be sufficient to permit the taking away of a prospective or contingent right and at the same time be insufficient as against a vested right of much worth. On the other hand, serious public danger would justify the abrogation of private rights of great present value, of liberty itself. In order to determine the reasonableness of the legislative act now under investigation, it is necessary to appraise the social need and the quantity of property of which the defendant will be deprived if the law is operative as to him.

On the basis of such appraisal the Court holds that the amendment is constitutional. Unquestionably it has for its object the promotion of the public health, safety, convenience and general welfare. It is not a new departure in zoning regulation, but an elaboration of a restriction previously existing. Storage of more than five cars has been forbidden since 1928. Parking presents the same problems of public health, safety and welfare as does storage, with, if anything, increased intensity, because of lack of supervision. The ordinance is not discriminatory, because it applies to all business districts in the city and to the same areas to which the prohibition against garages applies.

Parking also, like storage, may be permitted in certain localities where there was already a garage in 1916, and the Board of Appeals may also allow for provisional or temporary permits for parking in certain cases. This removes the objection of unreasonableness in many cases (*St. Albans-Springfield Corp. v. Cornell*, 257 N. Y. 73).

Nor can it be said that the quantity of property right of the defendant is very great. The land in question is adaptable to many uses besides that of parking; and, besides, defendant has the right to apply to the Board of Appeals for a variance. Even if he will sustain a loss, this does not give him such a vested interest as to make the exercise of the police power, in this case, unreasonable. He has made no permanent improvements, nor any investment.

The Court therefore concludes that, as to this defendant, the amendment is a valid exercise of the police power.

Memorial to a Great Town Planner

To the Editor of THE AMERICAN CITY:

Sir Patrick Geddes died in 1932. Those who are best qualified to judge his work look upon Geddes as one of the great seminal minds of our time: a man whose influence will be even greater in the future than it was in his own lifetime. As biologist, as sociologist, as educator, as town planner, as logician and philosopher, Geddes was a pathfinder who opened up new territories, and who consolidated hitherto dispersed and unrelated advances. Like Leonardo, Geddes left behind him a vast mass of unpublished notes and papers, most of which have now been gathered together in the Outlook Tower at Edinburgh—the remains of a sociological museum and laboratory that he founded.

Funds are now needed to endow the Tower itself as a permanent institution, and to provide for the editing of Geddes' manuscripts, so that they may be made available to students, as well as to ensure their publication. Six months ago a memorial committee, including such names as Henri Bergson, D'Arcy Thompson, J. L. Myres, Bernard Shaw and Raymond Unwin, made an appeal in England for funds. So far the response is inadequate. As a disciple and friend of Geddes, I am therefore making this appeal in America to those who understand the value of Geddes' work and wish to help propagate his influence.

Five thousand pounds are needed. Contributions should be forwarded to Sir Thomas B. Whitson, 21 Rutland Street, Edinburgh, Scotland. May I at the same time ask those who were in correspondence with Geddes, or who have valuable recollections about his life, to forward letters and personal reminiscences to the Hon. Secretary, The Outlook Tower, Castlehill, Edinburgh, Scotland. Letters will be transcribed and duly returned to the owners.

LEWIS MUMFORD.

Recent City Manager Appointments

O. H. ANDERSON has been appointed City Manager of Fernandina, Fla., succeeding E. C. Garvin, who resigned six weeks ago.

P. H. Beauvais, former Manager of Manistee and Royal Oak, Mich., has succeeded Frank W. Voisine as City Manager of Manistique, Mich.

E. R. Compton has replaced J. Dunkel as City Manager of Webster City, Iowa.

H. P. Ford, Manager of Deland, Fla., from 1925-1933, has succeeded William R. Galt as City Manager of Tallahassee, Fla.

T. Ben Gibson, for nine years City Manager of the unofficial city of Scottsdale, Pa., is the new Manager of Ambridge, Pa., a post which has been vacant for the last two years.

Clarence H. Hoper, formerly with the Colorado Public Service Co., in Denver, has been appointed City Manager of Alliance, Nebr., to succeed Earl D. Mallery, who resigned to become head of the Washington office of the American Municipal Association.

J. S. Kennedy, former Commissioner of the Poor, has succeeded James Goudie as City Manager of Ironwood, Mich. Mr. Goudie goes back to his former position as City Engineer and Assessor.

CLARENCE E. RIDLEY,
Director, International City Managers Association.

The Municipal Bond Market

Recent sales of new issues from the February numbers of *The Bond Buyer*:

Amount	Borower and Purpose	Rate (%)	Term (Years)	Basis (%)
$4,000,000	Massachusetts, Public Works Loan Act of 1935	1	1-5 Ser.	.95
250,000	Rockland Co., N. Y., Hospital Reconstruction	1.75	1-10 Ser.	1.71
1,770,000	St. Louis, Mo., Relief	2	5-8 Op. Avg.	1.76
140,000	Harwich, Mass., Water	2	1-20 Ser.	1.96
1,500,000	Mississippi, Refunding	2.25	4.25 Avg.	2.16
120,000	Hempstead, N. Y., Sewer Improvement	2.90	1-24 Ser.	2.87
150,000	Clairton, Pa., City	3	11-25 Ser.	2.88
335,000	Ponca City, Okla., Water Extension	4	14.5	3.23
112,000	Charlotte, N .C., Public Improvement	4	14.75 Avg.	3.26
687,500	Ft. Worth, Texas, Pleasure Grounds, Parks, and Playgrounds	3.5	19. Avg.	3.46
291,000	Douglas Co., Wis., Highway and Bridge, Construction	4	12 Avg.	3.48
127,000	St. Louis Co., Minn., School for Unorganized Territory	4	8.85 Avg.	3.78
300,000	Florida Ship Navigation Dist., Right-of-Way	4	3-27 Ser.	3.96
123,000	Bayonne, N. J., Water-Supply Line	4	13.66 Avg.	4
750,000	La Salle, Ill., Public Utility Certificates	6	8.5 Avg.	5.94

Selects latest ultra high frequency system for 2-way communication

Nashville, Tennessee, police are working faster these days. Western Electric radio has joined the force—gives it the jump on crime!

Twenty-one cars are equipped with dependable ultra high frequency apparatus: eleven of them have receivers and transmitters for 2-way communication with headquarters; ten carry receivers only.

Nashville headquarters uses a Western Electric 16 type 50 Watt transmitter for giving alarms—and three 19 type receivers for picking up reports from radio cars. Whether your town is large or small, there's Western Electric equipment to meet *your* needs.

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Current Items from the
Public Administration Clearing House

Dangers of Homestead Tax Exemption

NEW laws or constitutional provisions for homestead tax exemptions should be studied with care before their adoption, says Carl H. Chatters, Executive Director of the Municipal Finance Officers' Association, in the current *Municipal Finance News Letter*. While proponents argue that such measures encourage home-owning, the opponents see them as a subsidy to the home-owner at the expense of the renter. Moreover, the loss of revenue to local governments must be made up by some other levy.

Mr. Chatters calls attention to a study of proposed tax exemptions made by the Oklahoma Tax Commission, based on an analysis in 31 counties of that state. A constitutional amendment already approved by voters authorizes the Legislature to fix the amount of exemption. This amount may be increased, but not diminished for twenty years. The state government will lose no revenue, since it has not levied a property tax for some time.

Taking the whole 31 counties, the Oklahoma Tax Commission found that a homestead exemption of $500 would reduce total assessed valuations by 6.4 per cent; a $1,000 exemption would reduce the rolls by 10.3 per cent; and with a $2,500 exemption the reduction would be 15.1 per cent. Complete exemption of all homesteads would cut total assessed valuations by 17.6 per cent. A study of individual counties shows that one of them would have a reduction of 23 per cent in assessed valuation even on a $1,500 exemption.

A survey made recently by the Kansas City Civic Research Institute for the state of Missouri, which last year defeated a homestead exemption proposal, indicates that Kansas City would probably see a reduction of around $1,750,000 to $2,000,000 in revenues if homesteads were exempt from taxes. Missouri cities in general would lose from 6 to 70 per cent of their revenues, the smaller cities losing the larger amounts. St. Louis, for example, with 67,162 taxable homes, would lose about 6 per cent, or $1,200,000, whereas Sedalia, a city of 2,927 taxable homes, would lose 70 per cent, or $97,000. The state as a whole, including all governments, would lose approximately $14,000,000 in revenue, or about 14 per cent of the total amount of property tax collections.

The effect of the $5,000 homestead exemption law in Florida, which became operative with November, 1935, tax collections, has not yet been determined, since not enough time has elapsed for political units to check their revenue losses. Estimates indicate that they will run from 10 to 19 per cent.

Eight states now have homestead exemption provisions in their laws. Two of them—New Mexico and Oklahoma—passed the measures in 1935 in the form of constitutional amendments. Florida, Louisiana, Minnesota, West Virginia, Texas and Mississippi had such laws prior to 1935. In 1936 two other states—North Carolina and Utah—will hold referenda on similar amendments.

"Tax exemptions tend to confuse the struggle for equitable taxation. Their growth is alarming," comments Mr. Chatters. "War veterans have long been favored. Religious and educational institutions not only want government service without cost, but they keep highly valued and well located real estate off the tax rolls. Homestead exemptions are spreading. New industries ask local subsidies through freedom from taxation. To encourage building during the depression, some exemptions have been given home builders. In some cities buildings of state or national governments receive extensive services from city or county governments without just compensation. Then there will be found the large class who are exempt through political pull or legal subterfuge.

"When we were children in school and the writing on the blackboard became so overlapped and mixed up that we could not read it properly, we wiped the slate clean and started over fresh. Maybe it would be a good thing to wipe out all tax exemptions and then make each class or group justify its special privileges."

RFC Bank Stock Revenue for Cities and States

DECISION of the U. S. Supreme Court that RFC preferred bank stock is taxable will mean several millions of dollars of revenue to state and local governments, but exactly how many it is difficult to determine, says Albert W. Noonan, Technical Director of the National Association of Assessing Officers.

Tax laws of the 48 states vary considerably, Mr. Noonan points out. Seventeen states will levy a uniform rate on full valuation of the stock, 4 states a full rate on a low valuation, 16 states levy a special low rate on full valuation, 3 states tax intangibles according to their income, while the remaining 8 include the income from intangibles in all income received, and levy against such income. In addition, a few states specifically exempt from taxation any preferred bank stock.

The total stock holdings of the Reconstruction Finance Corporation in national and state banks of the country is estimated at $900,000,000. Over 2½ million of this is in the banks of Maryland, whose Baltimore National Bank, assessed for RFC stock by the Maryland Tax Commission, provided the "test case." The U. S. Supreme Court upheld the decision of the Maryland Court of Appeals, which had ruled the stock taxable, although the RFC was a national agency. Previously the Circuit Court of Baltimore City had ruled it tax-exempt.

As indications of the amount of revenue various cities expect to derive from this new source, Mr. Noonan cites Cook County (Chicago), Illinois, which hopes to collect about $2,500,000 in 1934-35 taxes on the $75,000,000 worth of RFC stock owned there; Detroit, Mich., which anticipates the collection of around $200,000 on $17,000,000; and Louisville, Ky., which expects to get about $30,000.

"The Supreme Court's action on this case is welcome news to assessors," Mr. Noonan says. "Ever since last June, when the Maryland Court of Appeals had decided that the RFC stock was taxable, assessing officers have been in a quandary about how to treat such property, especially because of conflicting decisions of courts in Maine and Kentucky in addition to opinions submitted by many attorneys-general."

The Social Security Act and Municipal Employees

EXCLUSION of state and Federal employees from benefits under the unemployment compensation and old-age assistance features of the Social Security Act need not be a permanent situation, Miss Marietta Stevenson, Assistant Director of the American Public Welfare Association, points out in the February issue of *Municipal Finance*. Although the Federal Government does not impose taxes on state and local governments, "this does not prevent the state from levying taxes and providing benefits for public employees," says Miss Stevenson.

Most states so far have exempted public employees, but the Social Security Board has specifically said that "the state may go further and adopt a wider coverage than that provided in the Federal act. . . . It may extend unemployment compensation to some or all of the public employees of the state and its subdivisions which cannot be included in a Federal tax measure. This is a matter of policy for the state to decide."

Some state unemployment compensation plans, however, do contain an elective feature such as the one included in the Washington law, which reads: "Any employer of any person within the state not otherwise subject to this Act shall become fully subject hereto upon filing by such employer with the Commission of his election to become fully subject hereto for not less than two calendar

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years, subject to written approval of such election by the Commission." Alabama, New York and Massachusetts have included similar provisions in their unemployment compensation legislation.

"In most of the states which have been enacting unemployment compensation laws," Miss Stevenson comments, "public employees generally have not realized that they personally would be very much affected by provisions which were more or less optional to the state, and so they have not taken a position one way or another on this matter." It is probable, she adds, that in the future public employees operating in many states through state leagues of municipalities will be much more alert to their interests in the matter of unemployment compensation and old-age benefits.

County-Municipal Administrative Accord

CALIFORNIA is about to initiate a program designed to dispel the popular illusion that public administrators serving different levels of government are in competition with each other.

Through the initiative of the Secretary of the League of California Municipalities, the California County Supervisors' Association will appoint a permanent committee of three supervisors whose sole function, according to the League Secretary, Richard Graves, is to "cooperate with the League of California Municipalities in the problems of local government."

This effort of California local authorities to prove untenable the position that "the officials of one level of government regard with hostility and suspicion the officials of another level of government" is a "foundation stone upon which we may start to erect the solid structure of local government administration," according to Clifford W. Ham, Executive Director of the American Municipal Association, of which the California League is a member.

The Federal official who complains that "his work is being interfered with or frustrated by state or local government; the administrator connected with state government who berates the Federal Government for its 'encroachment' upon his 'rights'; and the local government officer who believes that he is about to be swallowed by a voracious state government—all these," says Mr. Ham, "present evidence of a particularly baffling type of confused thinking." The same individuals compose the communities with which each of these three administrators is concerned, Mr. Ham points out. "None of us can escape being a member of a community which has a local government; none can escape being the citizen of a state; we all are citizens of the United States. Why, then, should the administrators representing these three levels of government look upon each other as hostile aliens?"

People must be regarded as "indivisible human beings in whose service and for whose benefits these governments are established," says Mr. Ham. "We must think of ourselves and our administrative specialties as being only parts of a machinery by which the people as a whole desire to serve as best they can the individual human beings who compose the people."

Municipal Markets

MUNICIPAL markets, "white elephants" in many cities, can be made self-supporting and even profitable, according to recent reports on two of them. The Benton Harbor, Mich., municipal fruit and vegetable market is described as doing a three-million-dollar annual business by its City Manager in the February issue *of Public Management*. The Department of Public Markets of New York City reports that within the administration of its present Mayor, Fiorello LaGuardia, the city's markets have changed from inefficient and expensive undertakings into profitable investments.

Benton Harbor's is the largest cash-to-grower fruit market in the world, the project covering 11 acres not far from the city's business district. Out-of-town truckers arriving at the market pay $1 for the privilege of purchasing each load of produce. Their trucks are assigned to a loading platform, where they receive the fruits and vegetables bought from the growers, paying for them in cash. Differences of opinion between growers and buyers are settled by the market master or by state inspectors, who pass judgment on the quality and grade of produce offered.

The Benton Harbor market is administered by a board of five members, appointed by the mayor for five-year terms, with one member retiring each year. Although it is separate and distinct from the city government, all purchases are made through the City Purchasing Department, all money is handled through the City Treasurer's office, receipts from market sales are turned in each day and deposited in the city's general fund, and all bills are paid by Benton Harbor city vouchers.

Metropolitan New York, which daily receives nearly 3,000 carloads of perishable and semi-perishable goods and is the largest outlet for food producers in the country, had the poorest facilities for terminal food distribution of any major city in the country, up to January, 1934, according to the latest report of the Department of Public Markets, Weights and Measures. Retail merchants from the Bronx and the outlying sections of Brooklyn had to drive as far as 20 miles through dense traffic in order to get their daily supply of perishable foods.

There had been two terminal markets in use before this time—one in downtown Manhattan, and one in Brooklyn. In 1934 the Bronx Terminal Market, which had cost nearly $17,000,000 and had been used only as a warehouse, was given a paved square large enough to park 500 farmers' trucks. Seventy-five merchants' stores, a bank building and a restaurant building and retail market were constructed at an investment of an additional $1,500,000. Long before the construction was finished, each of the 75 stores had been leased for periods running from three to five years, and almost one-half of the 36 platform stalls within the market proper, which previously never had been rented, began to produce revenue for the city. Instead of operating costs of $142,000, which, as in 1933, swallowed a revenue of $64,000, by May, 1936, a minimum gross revenue of $316,000, with an operating cost of $117,000, appears to be insured.

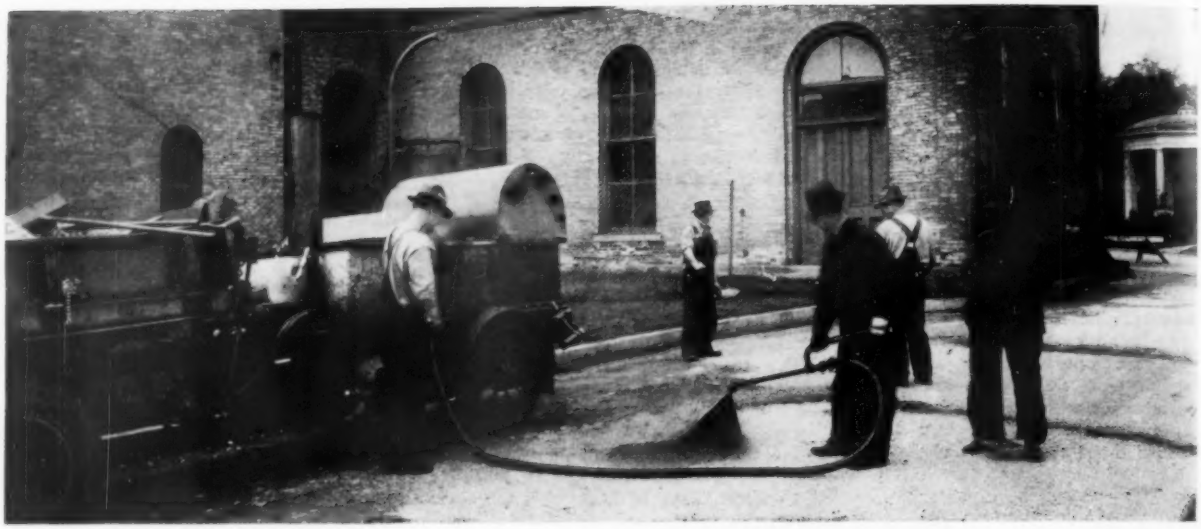
Creation of this market means not only an operating profit but a reduction of from $75 to $150 per carload on some 30,000 carloads of fruits and vegetables during the first year of distribution, the report estimates. This is accomplished by the readjustment of the railroad facilities and the extension of the city-owned piers in Harlem River at the market, which will entirely eliminate the cost of trucking foods through the city.

Consolidation of Local Governments Pays

LOS ANGELES COUNTY, which last year consolidated its 46 townships into 24 units, has demonstrated that money can be saved by reducing the number and increasing the size of governmental units. Roger Jessup, member of the Los Angeles County Board of Supervisors, describes how the California county is now $100,000 ahead, in the current issue of *The Tax Digest*, magazine of the California Taxpayers' Association.

The Los Angeles County township consolidation program was put into effect in January, 1935, upon order of the Los Angeles County Board of Supervisors. The County Bureau of Efficiency, which drew up the details of the consolidation, estimated that $91,000 a year would be saved. Actually, however, savings during the first year have totaled more than $100,000. Expenditures for the first six months of 1934, before consolidation, amounted to $231,251.95. During the first six months of 1935 they were only $173,906.94—a difference of $57,345.01. As proof that the saving is the result of true economy and not merely of retrenchment, County Supervisor Jessup explains that township justice courts and constables' offices are now operating more efficiently than before, even with increased loads.

"Consolidation of townships, counties, school districts and other governmental units to reduce sharply the total number of independent authorities has long been advocated by those who have searched for constructive ways of reducing the tax burden," comments Robert M. Paige, Secretary of the Governmental Research. "In Los Angeles County is a concrete example of what a consolidation program can accomplish. Undoubtedly township consolidation would yield similarly large dividends in many other counties in the country."



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Accidents

City's contract with State Highway Department to light state bridge held not to make city liable to traveler for injury on bridge due to unlighted condition (Missouri Supreme Court: *Lowery v. Kansas City*, 85 S. W. 2d, 104).

Borough held liable for injury to person using unguarded public footway serving as approach to borough hall (New Jersey Court of Errors and Appeals: *Allas v. Borough of Rumson*, 181 Atl. 175).

City held liable for death of boy when automobile dropped through drawbridge opening where wigwag traffic warning did not work (Washington Supreme Court: *Barber v. City of Seattle*, 48 Pac., 2d, 234).

Municipality held not liable for injury to boy who fell from miniature train operated in city park, because municipality acted in governmental capacity (California District Court of Appeal: *Meyer v. City and County of San Francisco*, 49 Pac. 2d, 893).

Attorneys

City, although benefited, held not liable to attorney for services rendered at instance of citizens (Michigan Supreme Court: *Barlum Realty Co. v. Heggblom*, 262 N. W. 647).

Business Regulations

Ordinance limiting hours for operation of open air markets held invalid (New York Supreme Court, Erie County: *Cowan v. City of Buffalo*, 282 N. Y. Supp. 880).

Ordinance that virtually prohibited non-resident baker from selling to retail merchants held void (Oklahoma Supreme Court: *Buckler v. City of Geary*, 51 Pac. 2d, 271).

Charters

An ordinance, although approved by electors, held incapable of controlling the meaning of a charter provision (Washington Supreme Court: *State v. City of Bellingham*, 48 Pac. 2d, 602).

Claims

Charter provision requiring damage claims against city to be presented before suit, upheld; but provision barring suit on claims not filed within six months held invalid (Michigan Supreme Court: *Northrup v. City of Jackson*, 262 N. W. 641).

Requirement that claims against city be verified held mandatory, making an unverified claim a nullity (California District Court of Appeal: *Spencer v. City of Calipatria*, 49 Pac. 2d, 320).

Contracts

Statute forbidding expenditures without provision for tax levy held to invalidate engineer's contract to design and supervise water-works construction (United States Circuit Court of Appeals, Second Circuit: *Potts v. Village of Haverstraw*, 79 Fed. 2d, 102).

Where special assessments for street repairs failed because contracts were invalid, held that contractor could not recover from city (Iowa Supreme Court: *Horrabin Paving Co. v. City of Creston*, 262 N. W. 480).

Fences

Ordinance construed as forbidding fence consisting of woven wire six feet high with barbed wire fastened to arms extending inward over private property, held invalid (Wisconsin Supreme Court: *Williams v. City of Hudson*, 262 N. W. 607).

Food

Constitutionality of ordinance forbidding delivery of milk at home excepting between 8 A. M. and 7 P. M. held sufficiently doubtful to warrant temporary injunction pending final hearing (United States District Court, Southern District of California: *E. H. Birkheiser v. City of Los Angeles*, 11 Fed. Supp. 689).

Libel

Notice filed with City Clerk in recall proceeding, stating that City Auditor had taken municipal money to which she was not entitled and had caused her personal attorney to be paid out of municipal funds, held libelous if false and malicious (California District Court of Appeal: *Gunsul v. Ray*, 45 Pac. 2d, 248).

Mandamus

City officials held subject to mandamus to call recall election against mayor and alderman (Texas Court of Civil Appeals: *Young v. State*, 87 S. W. 2d, 520).

Official Bonds

Treasurer's bond held to cover malfeasance in depositing city funds in bank in which he was officer and stockholder, although bank did not fail until after bond expired (Minnesota Supreme Court: *City of Marshall v. Gregoire*, 259 N. W. 377).

Official Liability

City commissioners and their sureties held liable to city for diverting sinking-funds to general fund (Kentucky Court of Appeals: *City of Newport v. McLane*, 77 S. W. 2d, 27).

Ordinances

Paving improvement proceeding held not vitiated because provision was made in form of resolution instead of ordinance (United States Circuit Court of Appeals, Fifth Circuit: *Independent Paving Co. v. City of Bay St. Louis, Miss.*, 74 Fed. 2d, 961).

Police Measures

Ordinance penalizing refusal of street venders and loiterers to move on when so directed by policemen upheld (Virginia Supreme Court of Appeals: *Benson v. City of Norfolk*, 177 S. E. 222).

Ordinance (full text of which is set forth in opinion) for bidding public entertainments between 1 A. M. and 8 A. M. upheld (United States District Court, Northern District of California: *Pughe v. Lyle*, 10 Fed. Supp., 245).

Public Buildings

Statute providing for insurance by state of public buildings held unconstitutional as to municipal buildings (Montana Supreme Court: *State ex rel. City of Missoula v. Holmes*, 47 Pac. 2d, 624).

Public Utilities

Permit to substitute busses for street cars held not such granting of a new franchise as to require referendum vote (New York Supreme Court: Appellate Division: *In re International Railway Co.*, 275 N. Y. Supp. 5).

Gas franchise provision for payment to city of percentage of gross receipts held valid as compensation for street use and not invalid as revenue tax (Montana Supreme Court: *City of Baker v. Montana Petroleum Co.*, 44 Pac. 2d, 735).

PWA Projects

Missouri statute and proceedings thereunder for municipal contribution to Federal Government to establish national park upheld (Missouri Supreme Court: *Vrooman v. City of St. Louis*, 88 S. W. 2d, 189).

Sewers

Backing-up of sewage on private premises through unknown cause held to place burden on city to show its freedom from fault (Louisiana Supreme Court: *Urban Land Co. v. City of Shreveport*, 162 So. 747).

Taxation

Municipal tax on meters in service held invalid as conflicting with state tax (Pennsylvania Supreme Court: *People's Natural Gas Co. v. City of Pittsburgh*, 175 Atl. 691).

Lessor of property used for religious purposes held not entitled to tax exemption (Florida Supreme Court: *Jefferson Standard Life Insurance Co. v. City of Wildwood*, 160 So. 208).

Land leased by city for private purposes held taxable, but water-works property held not taxable because located in another county, nor because used in selling water to other municipalities, nor because held in reserve and not presently used (Minnesota Supreme Court: *Anoka County v. City of St. Paul*, 261 N. W. 588).

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Water Supply

Two important reference volumes have recently been issued by the Geological Survey of the U. S. Department of the Interior: Water-Supply Paper 771 is "Floods in the United States—Magnitude and Frequency," by Clarence S. Jarvis and others; prepared in collaboration with the Water Planning Committee of the National Resources Board and its predecessor, the Mississippi Valley Committee; 497 photo offset pp., with folding maps and chart; tables, charts; paper, $1.00. Water-Supply Paper 772 is "Studies of Relations of Rainfall and Run-Off in the United States," by W. G. Hoyt and others; 301 photo offset pp.; many charts; paper, 25c. (Apply to Superintendent of Documents, Washington, D. C.)

Safety for Pedestrians

"Sidewalks Along State Highways" is the title of an article published in the January, 1936, issue of *The Travelers Standard*. It sets forth the right of the pedestrian to walk in safety on highways, and the feasibility of providing sidewalks or suitable footpaths paralleling rural highways. An extensive program of such work is being carried out in Massachusetts as a Federal-state project, a large part of the work to be done by WPA employees, the remainder by direct employees of the State Highway Department. 4 pp. (Apply to The Travelers Insurance Co., Hartford, Conn.)

Tax Delinquency

"The Trend of Tax Delinquency, 1930-1935; Cities over 50,000 Population," by Frederick L. Bird, Director of Municipal Research for Dun & Bradstreet, Inc., tells the story of the rising trend through 1933, and of two years of recovery—the reversal of the trend in 1934, and the progress made in 1935. Cities with outstanding collection records, and cities showing collection stability, are presented. Handicaps to recovery—those that have been overcome, and those that have been created or continued because of administrative confusion or inefficiency—are analyzed. The survey at the end of 1935—the look backward that affects the look forward—involves using the tables relatedly in dealing with any given city in order to do justice to each municipality's financial administration and history. "Not all cities which show poor tax collection records are in serious financial straits." For the great majority of cities, balanced operations are indicated, "some with ease and most without serious difficulty." 26 photo offset quarto pp. $2.00. (Order from Municipal Service Department, Dun & Bradstreet, Inc., 290 Broadway, New York.)

City Affairs

"A Report on the Affairs of the City of Toledo" has been prepared (1936) by the Citizens' Survey Committee, a non-partisan group whose purpose was to give to the new Council and City Manager sympathetic assistance in the city administration at this critical time of charter change. The divisions of the city administrative work presented in separate reports, here brought together, are: Finance; Purchasing; Welfare; Health; Law; Civil Service; Safety; Engineering; Cost Accounting. 90 photo offset pp. Earle S. Smith is Chairman of the General Committee; Lent D. Upson is Supervising Director, and George A. Blair, Coordinator of Activities. (Apply to the Citizens' Survey Committee, Toledo, Ohio.)

Traffic Safety

"Live and Let Live" is the title of the sixth of a series of booklets issued by The Travelers Insurance Company, Hartford, Conn., on the causes and results of the misuse of streets and highways. February, 1936. 40 pp. "The way that too many persons drive and walk" is portrayed in many startling drawings, and summarized in appalling accident statistics. Here is a wealth of material for telling use in safety campaigns. (Apply to G. D. Newton, Supervisor, News Bureau, The Travelers, Hartford, Conn.)

Planning Bibliography

Bibliography of Planning, 1928-1935.—By Katherine McNamara, Librarian, School of City Planning, Harvard University. Harvard University Press, Cambridge, Mass. 1936 *X* + 232 *pp.* $3.50.

This new Bibliography answers an insistent demand, due primarily to the striking turn in national affairs since 1932, for a comprehensive listing of the many important books, magazine articles, and technical papers which have appeared since the publication of its two much-used predecessors: "Manual of Information on City Planning and Zoning," and its supplement, "Planning Information Up-to-Date, 1928," by Theodora Kimball Hubbard and Katherine McNamara. It uses the same system of classification as these earlier volumes, but it has greatly expanded sections on such subjects as State and National Planning and Housing. In fact, many new subject headings have been necessary to encompass the ever-widening scope of the planning movement.

The arrangement of the volume is admirable. Preceding the Bibliography proper there is a Planning Bookshelf, with 37 entries; a Short List of Typical State and Regional Planning Reports, with 21 entries; a list of Organizations Active in Promoting Planning in the United States, with 29 entries; a Selected List of Periodicals Devoting Space to Planning, with 64 entries; and a section devoted to Planning Abroad, with 55.

Some 3,200 entries in the main bibliography are conveniently classified for ready reference, and there is also an Authors' Index and a Subject Index. THE AMERICAN CITY is gratified to find in the bibliography 270 or more entries for articles in this magazine since July, 1928, or for articles by its editor published elsewhere.

This important new addition to the growing list of Harvard City Planning Studies will prove to be a ready reference book of great value to public officials, planning boards and librarians, and to students and practitioners in the planning field.

Alleys

The City Planning Board of Boston, Mass., has recently sent out Volume I of its "Report on Alley Survey for the City of Boston," submitted in October, 1935, the work having been carried out as ERA projects. It covers conditions in more than 2,000 alleys in the congested sections of the city, public and private, also footways and driveways, giving data on locations, ownership, type; street signs, driveways, surface grades, drainage, sidewalks, lighting, rubbish, ash and garbage removal, sanitation, area, lengths and curves. 46 photo offset pp. Diagrams. This volume is intended for general distribution, and contains definitions, legislative ordinances, photographs and factual tables, summarizing the data contained in other tabulations. Volume II contains more detailed information regarding districts, and is intended for limited distribution. (Apply to Miss E. M. Herlihy, Secretary of the Board, 30 City Hall, Boston, Mass.)

Accident Prevention

The Second Annual Report of the Committee on Automobile Accident Prevention to the New York State Bar Association, prepared for presentation at the annual meeting of the Association, January 23-25, 1936, has been issued in pamphlet form. The excellent results accomplished by the wide and varied distribution of the 1934 report of the Committee are summarized in this second report. The Committee again makes constructive recommendations for safety education and accident prevention. Among these are the construction of pedestrian paths or walkways along all streets and all main rural highways; and adequate street and highway lighting to prevent night accidents. Quotations are given from an article in *Liberty* (November 2, 1935) by Governor Hoffman of New Jersey, former Commissioner of Motor Vehicles of that state. The article, "Death After Dark," stresses the necessity for better highway lighting, and speed restriction. 11 pp. (Apply to General Electric Co., Schenectady, N. Y.)

City Planning and Public Works

Two reports that appear in the February, 1936, issue of the Proceedings of the American Society of Civil Engineers are here noted. "Equitable Zoning and Assessments for City Planning Projects"—Progress Report of Committee of City Planning Division. The principles that are operative in the field of special assessments are given, based on the opinions of many officials and observers who have been actively connected with municipal finance and improvements. The second report referred to is on "Principles to Control Governmental Expenditures for Public Works"—First Progress Report of Committee of Engineering-Economics and Finance Division. Seven broad principles are given, with an exposition of each. The publication is $1.00 a copy. (Apply to the Society, 33 W. 39th St., New York.)

Municipal Administration

Realizing the great need for better governmental personnel, the Training Committee of the International City Managers' Association contributes from a wide and distinguished experience and knowledge its report on "Training for Municipal Administration." The present committee builds broadly on the work of the two previous committees, which was limited to training for the city manager profession. The Findings naturally illuminate the field and its requirements and possibilities. The analysis includes: types of municipal administrators and their essential qualities; sources of administrators, and the responsibility for their training; methods of selection for training, and pre-entry education; the importance of graduate schools for training public administrators; in-service training, and the support of administrators in the field; the service rendered by the conference and the extension courses of the Association. 20 pp. January, 1936. (Apply to the International City Managers' Association, 850 E. 58th St., Chicago, Ill.)

New York City Government

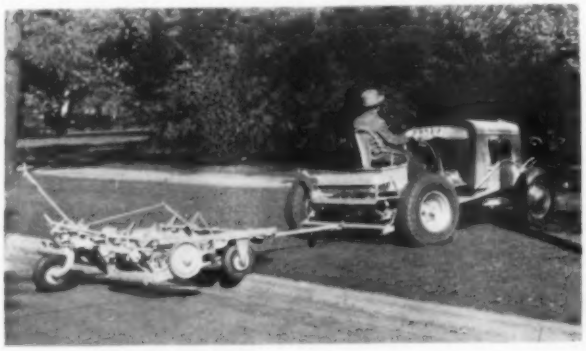
The "1936 Guide to the Municipal Government, City of New York" is unique and authoritative. Every department, bureau and commission is described in detail, its functions outlined and its relationship to other parts of the city's government explained. It includes all the new features of the city's government and administration, among which are special taxes, the bankers' agreement, budget procedure for the executive and the capital outlay budgets, a résumé of all pension systems, the Board of Buildings, new Authorities for parkways and bridges, the Planetarium, public relief, and new housing projects. This manual of 112 pages has been compiled by Rebecca B. Rankin, Librarian of the New York Municipal Reference Library, who was aided in the undertaking by the many Commissioners of the city. Paper-bound, $1.25. (Apply to the publishers, The Eagle Library, Inc., Eagle Bldg., Brooklyn, N. Y.)

Public Welfare

The January, 1936, issue of *Public Welfare News*, published by the American Public Welfare Association (850 E. 58th St., Chicago, Ill.), is devoted to "Recent Observations on the Transient Problem." It seeks to determine the present provisions for transients and the number who have been placed on Works Progress Administration, National Youth Administration, and in Civilian Conservation Corps camps. Special study was made of the problem in metropolitan areas in the Middle West—Chicago, Cleveland, Cincinnati, Detroit, Louisville. An article is included on "Planning for Transient and Homeless," by Dr. Ellen C. Potter, Chairman of the National Committee on Care of Transient and Homeless, which acts as a clearing house for the efforts of private and public agencies interested in the solution of nation-wide problems of transient and homeless persons. 12 photo offset pp. (Apply to the American Public Welfare Association at the address given above.)

FOR YEAR AFTER YEAR Better Park Mowing--with "Better" Economy

Increase operating economy for park systems with this Ideal Bulldog 3-gang. The big pneumatic tires allow the Bulldog to travel over paved streets, rough roads, over curbs, anywhere. Cutting units can be lifted off the ground.



New IDEAL Three-Gang with Pneumatic Tires

This is the NEW Bulldog—even better than before. Close-coupled cutting units insure smooth, thorough cutting, on all types of ground. Simple, rugged construction gives freedom from trouble and high repair bills. Yet, the Bulldog has less drawbar pull than any comparable mower. Point-by-point comparison proves why these Ideals are going over big with park operators. Send for your copy of the new catalog.

IDEAL Master "30" Roller Type

Park systems from Los Angeles to New York—from Toronto to the far south—are using the Ideal Master. This rugged, yet easily operated machine rolls and conditions the sod as it cuts. The Ideal Master is as practical on rough ground as the smoothest sod. For long years of low-cost, trouble-free service—and exceptional ease of handling, choose the Master—built even better for 1936. Write for the details.

IDEAL POWER LAWN MOWER CO.

400 Kalamazoo Street, Lansing, Michigan

New York Branch:
12 Harrison Street, New Rochelle, N. Y.

Canadian Distributors:
Aikenhead Hardware Ltd., 17 Temperance St., Toronto, Ont.

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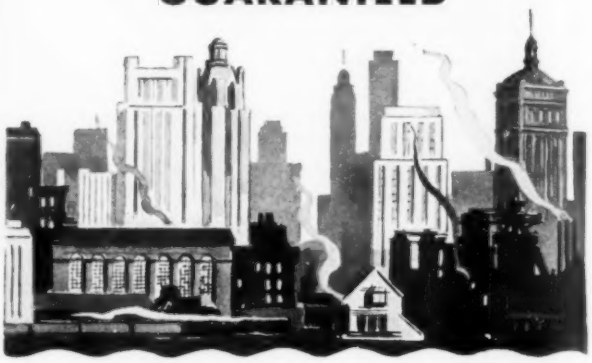
GUARANTEED



IT COVERS THE GROUND

There is always a definite advantage in getting apparatus from its originator. The company that invented and perfected a device always knows most about it, and offers the invention in its most perfect form . . . Remember that RCA is not only the manufacturer but also the first to develop and use RCA Terra-Wave Police Radio, the modern system that makes radio a marvelously effective police weapon . . . For Police Radio at its best, reliable, efficient, static-free, non-interfering, one-way or two-way, get RCA Terra-Wave Police Radio . . . *Write for details.*

RCA MANUFACTURING CO., Inc.
CAMDEN, N. J.
A Service of the Radio Corporation of America

Municipal Government

A radio address on "The Chief Administrator's Responsibility for Good Government" was delivered on December 7, 1935, by Arthur M. Field, City Manager of Winchester, Va., over Station WJSV, in Alexandria, in the series sponsored by the League of Virginia Municipalities. It sets forth in a clear, refreshing manner the principles of business management of a city under a modern efficient charter, and the responsibility of council and chief administrator, resulting—if carried out—in good public service, prosperity, and lower taxes. 8 mimeographed pp. Copies available without charge. (Apply to Morton L. Wallerstein, Executive Secretary, League of Virginia Municipalities, Travelers Bldg., Richmond, Va.)

Other Reports Received

CHICAGO, ILL.—Annual Report, Retirement Board of the Park Employes' Annuity and Benefit Fund, year ending June 30, 1935. 72 pp.

HARTFORD, CONN.—Annual Report, Board of Park Commissioners, and Annual Report, Division of Cemeteries, year ending March 31, 1935. 61 pp.

JACKSON, MISS.—Annual Report, City Auditor of the Civic and Financial Affairs of the City, year ending September 30, 1935. 66 pp.

MANSFIELD, MASS.—Annual Report of the Town Officers, 1935. 141 pp.

ST. LOUIS, MO.—Annual Report, Board of Commissioners, Tower Grove Park, 1935. 11 pp.

WEST READING, PA.—Annual Report of the Borough, 1935. 20 mimeographed sheets.

Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

MARCH 19-20.—TRENTON, N. J.
New Jersey Sewage Works Association. Annual meeting. (Stacy-Trent Hotel.) Secretary, John R. Downes, Bound Brook, N. J.

MARCH 23-25.—LEXINGTON, KY.
American Water Works Association—Kentucky-Tennessee Section. Annual meeting. Executive Secretary, F. C. Dugan, 532 West Main Street, Louisville, Ky.

MARCH 25-28.—LITTLE ROCK, ARK. (100)
Southern Commercial Secretaries' Association. Annual meeting. Secretary-Treasurer, Stanley Draper, Manager, Chamber of Commerce, Oklahoma City, Okla.

MARCH 26-27.—OSWEGO, N. Y.
American Water Works Association—New York Section. Spring meeting. (Hotel Pontiac.) Secretary, R. K. Blanchard, 50 West 50th Street, New York.

MARCH 27.—WASHINGTON, D. C.
National Fire Waste Council. Semi-annual meeting. Manager, Terence F. Cuneen, Insurance Department, Chamber of Commerce of the United States, Washington, D. C.

MARCH 30-APRIL 3.—NEW YORK.
Building Officials' Conference. Annual convention. Secretary-Treasurer, William F. Hurd, Commissioner of Buildings, Indianapolis, Ind.

MARCH 31-APRIL 2.—TAMPA, FLA.
American Water Works Association—Florida Section. Annual meeting. Secretary, J. R. Hoy, Sanitary Engineer, 404 Hildebrandt Building, Jacksonville, Fla.

APRIL 1-3.—HAMILTON, ONT. (350)
American Water Works Association—Canadian Section. Annual meeting. Secretary-Treasurer, Dr. A. E. Berry, Ontario Department of Health, Parliament Buildings, Toronto, 5, Ont.

APRIL 7-9.—LAFAYETTE, IND.
American Water Works Association—Indiana Section. Annual meeting. Secretary-Treasurer, J. A. Bruhn, Indianapolis Water Company, Box 855, Indianapolis, Ind.

APRIL 7-9.—SAVANNAH, GA. (250)
American Water Works Association—Southeastern Section. Annual meeting. (Hotel De Soto.) Secretary-Treasurer, W. H. Weir, 4 Capitol Square, S. W., Atlanta, Ga.

APRIL 9-10.—EVANSTON, ILL.
American Water Works Association—Illinois Section. Annual convention. Secretary-Treasurer, W. D. Gerber, Room 57, Chemistry Building, Urbana, Ill.

APRIL 9-11.—LAWRENCE, KANS. (140)
Kansas Water and Sewage Works Association. Annual meeting. Secretary, E. Boyce, State Board of Health, Lawrence, Kans.

APRIL 13-14.—WASHINGTON, D. C.
Conference of State and Territorial Health Officers with the United States Public Health Service. Address: Surgeon General, United States Public Health Service, Treasury Department, Washington, D. C.

APRIL 17-18.—BUTTE, MONT. (75)
American Water Works Association—Montana Section. Annual meeting. Secretary, Herbert B. Foote, State Board of Health, Helena, Mont.

APRIL 23-24.—BALTIMORE, MD.
American Water Works Association—Four States Section. Annual meeting. (Lord Baltimore Hotel.) Secretary-Treasurer, C. H. Becker, 400 Chestnut Street, Philadelphia, Pa.

APRIL 23-24.—BOSTON, MASS.
Massachusetts Safety Conference. Annual convention. (Hotel Statler.) Secretary, Lewis E. MacBrayne, 6 Beacon Street, Boston, Mass.

APRIL 27-30.—WASHINGTON, D. C. (2,500)
Chamber of Commerce of the United States of America. Annual meeting. Secretary D. A. Skinner, 1615 H Street N. W., Washington, D. C.

APRIL 27-28.—WASHINGTON, D. C. (500)
National Rivers and Harbors Congress. (Hotel Mayflower.) Secretary, Fred D. Beneke, 1128 Connecticut Avenue, Washington, D. C.

APRIL 27.—HARTFORD, CONN.
New England Sewage Works Association. Spring meeting. Secretary, F. W. Gilcreas, State Department of Health, New Scotland Avenue, Albany, N. Y.

MAY 7-8.—WENATCHEE, WASH. (200)
Association of Washington Cities. Annual convention. Secretary, Russell W. Barthell, University of Washington, Seattle, Wash.

MAY 7-8.—BIRMINGHAM, ALA. (200)
Alabama League of Municipalities. Annual convention. Executive Secretary, Ed. E. Reid, Montgomery, Ala.

MAY 11-16.—RICHMOND, VA. (2,000)
American Library Association. Annual conference. Secretary, Carl H. Milam, 520 North Michigan Avenue, Chicago, Ill.

MAY 11, WEEK OF—ATLANTIC CITY, N. J.
National Fire Protection Association. Annual convention. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

MAY 14-16.—ABERDEEN, WASH.
American Water Works Association—Pacific Northwest Section. Annual meeting. Secretary, Ernest C. Willard, 720 Corbett Building, Portland, Ore.

MAY 14-15.—FREDERICK, MD.
Maryland-Delaware Water and Sewerage Association. Annual conference. (Francis Scott Key Hotel.) Secretary, A. W. Blohm, 2411 North Charles Street, Baltimore, Md.

MAY 20-21.—ASBURY PARK, N. J.
Eastern Safety Conference. Manager, Fred M. Rosseland, 24 Branford Place, Newark, N. J.

MAY 22-23.—ATLANTIC CITY, N. J.
American Public Welfare Association. Annual conference. Director, Fred K. Hoehler, 850 East 58th Street, Chicago, Ill.

MAY 24-30.—ATLANTIC CITY, N. J. (5,000)
National Conference of Social Work. Annual conference. General Secretary, Howard R. Knight, 82 North High Street, Columbus, Ohio.

MAY 24-30.—ATLANTIC CITY, N. J.
Community Chests and Councils, Inc. Annual meeting. Executive Vice-President, Allen T. Burns, 31st Floor, Commerce Building, New York.

MAY 25-28.—NEW ORLEANS, LA. (1,000)
National Association of Purchasing Agents. Annual convention. Secretary-Treasurer, G. A. Renard, 11 Park Place, New York.

JUNE 1.—PHILADELPHIA, PA. (450)
Pennsylvania State Association of Township Commissioners. Annual convention. (Bellevue Stratford Hotel.) Secretary-Treasurer, H. A. Fritschman, Eagle and Darby Roads, Upper Darby, Pa.

JUNE 2-5.—ATLANTA, GA.
Smoke Prevention Association. Annual convention. Secretary, Frank A. Chambers, 1411 City Hall Square Building, Chicago, Ill.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 15-19.—LOS ANGELES, CALIF.
Institute of Government. Annual session. (University of Southern California.) Executive Secretary, Prof. W. Ballentine Henley, Acting Dean, School of Government, 3551 University Avenue, Los Angeles, Calif.

JUNE 22-26.—PASADENA, CALIF.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JUNE 22-23.—VANCOUVER, B. C. (75)
Conference of State and Provincial Health Authorities of North America. Secretary, Dr. A. J. Chesley, State Board of Health, St. Paul, Minn.

JUNE 23-25.—HARTFORD, CONN.
New England Association of Fire Chiefs. Annual convention. Secretary-Treasurer, John W. O'Hearn, 99 Main Street, Watertown, Mass.

JUNE 24-26.—LETHBRIDGE, ALTA.
Union of Alberta Municipalities. Annual convention. Secretary-Treasurer, J. E. Fraser, Wetaskiwin, Alta.

JUNE 24-26.—VANCOUVER, B. C. (300)
Canadian Public Health Association. Annual meeting. General Secretary, Dr. J. T. Phair, Spadina House, Toronto, Ont.

JUNE 24-26.—STATE COLLEGE, PA. (150)
Pennsylvania Sewage Works Association. Annual conference. Secretary, L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 26-27.—PITTSFIELD, MASS.
New England Association of Commercial Executives. Annual meeting. Secretary, Peter Foley, Norwich, Conn.

JUNE 26-28.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Annual convention. Secretary-Treasurer, I. M. Glace, 20 South 22d Street, Harrisburg, Pa.

JUNE 28-JULY 2.—PORTLAND, ORE. (10,000)
National Education Association of the United States. Annual meeting. Secretary, Willard E. Givens, 1201 16th Street N. W., Washington, D. C.

JULY 15-17.—RAPID CITY, S. DAK.
League of South Dakota Municipalities. Secretary, Dr. G. R. Breckenbridge, University of South Dakota, Vermillion, S. Dak.

AUGUST 6-7.—POUGHKEEPSIE, N. Y. (1,000)
Eastern Association of Fire Chiefs. Annual convention. Secretary, Charles E. Clark, Box 217, Wayne, Pa.

AUGUST 31, WEEK OF.—BUFFALO, N. Y.
Illuminating Engineering Society. Annual convention. (Statler Hotel.) General Secretary, D. W. Atwater, 29 West 39th Street, New York.

SEPTEMBER 28-30.—TORONTO, ONT.
American Society of Municipal Engineers. International Association of Public Works Officials. Public Works Congress. Executive Director, Frank W. Herring, 850 East 58th Street, Chicago, Ill.

OCTOBER 14-16.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. Annual convention. (Haddon Hall.) Secretary, Dr. F. Herbert Snow, Telegraph Building, Harrisburg.

OCTOBER 26-28.—CHARLOTTE, N. C.
American Water Works Association—North Carolina Section. Annual convention. (Hotel Charlotte.) Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

OUR DETECTIVES SHOWED US THAT FENCE PROTECTION WOULD PAY FOR ITSELF IN TWO YEARS...

"They counted up the costs of pilferage, petty vandalism, fire, burglary, public liability, and other risks—some affecting premiums, many not insurable. They showed us in black and white that our savings would pay in two years for a long-lived Continental fence."

Special-analysis copper-bearing steel—wire heat-treated for tensile strength and resilience—heavy coating of hot-dipped zinc—and many other modern features make Continental Chain-Link fence serve better and last longer.

14 MODERN AND DISTINCTIVE *features*

★ CONTINENTAL *Chain Link* FENCE

MAIL THIS COUPON...TODAY

★TR. MRK. REG. U. S. PAT. OFF.

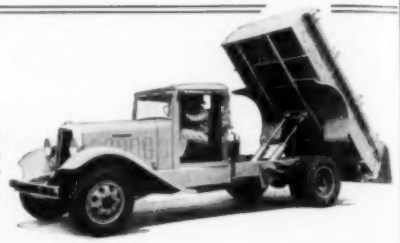
CONTINENTAL STEEL CORP., Kokomo, Indiana.
(Plants at Canton, Kokomo, Indianapolis)

Find out *now* how little this modern, many-sided protection will cost you—how much it will earn.

Name.....

Address.....

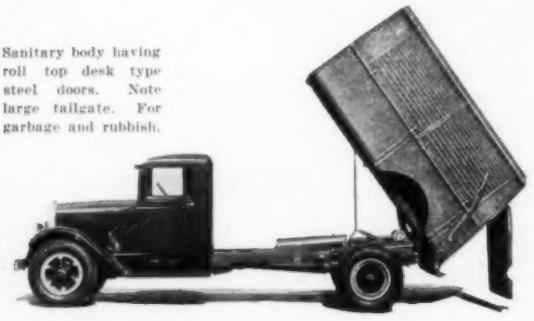
MODERN DUMP EQUIPMENT *for modern cities*

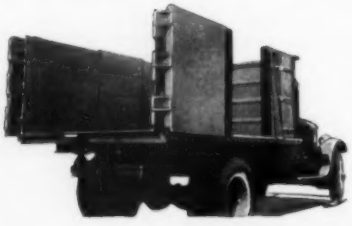


Enclosed body with sliding covers. Twin hydraulic hoist. For garbage or rubbish.

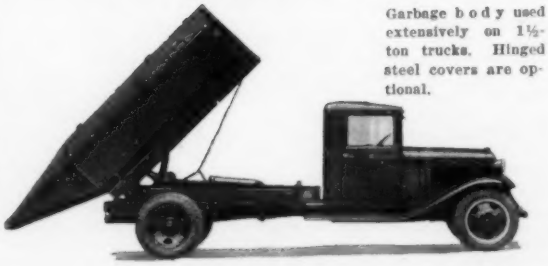
GAR WOOD equipment is solving the problems of garbage and rubbish collection in hundreds of American municipalities. The experience of Gar Wood engineers in this specialized field, is at your service. Write for bulletin, "Hoists and Bodies for Garbage and Rubbish Collection."

Sanitary body having roll top desk type steel doors. Note large tailgate. For garbage and rubbish.





Trash body, fitted with barn door type tailgate and removable side boards. Easily loaded and dumped.



Garbage body used extensively on 1½-ton trucks. Hinged steel covers are optional.

GAR WOOD INDUSTRIES INC.

WORLD'S LARGEST MANUFACTURER OF TRUCK EQUIPMENT

WOOD INDUSTRIES DETROIT

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Diesel Electric Generators

Three sizes of diesel-electric direct-connected generator sets, each unit consisting of a Caterpillar diesel engine equipped with an auxiliary fuel pump with a 1-gallon overflow tank, close regulation speed governor and manual control, direct-connected to an electric generator and assembled on a cast iron base, have been announced by Caterpillar Tractor Co., Peoria, Ill. Sets of 60-, 40- and 25-kw are included, and each may be had in either d-c or a-c models.

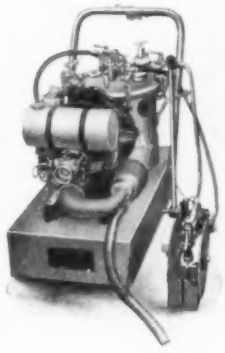
The direct-current generators are compound-wound, although shunt-wound machines can be furnished. Two-wire, 125-, 250- and 600-watt or three-wire d-c 125/250-volt generators are offered. The alternating-current generators are of the rotating field type with damper windings, making parallel operation possible. They are built with a direct-connected exciter, rheostat and a field discharge resistor. The a-c generators are built single, two- or three-phase, delivering 120, 120/208, 240, 240/480, 480, 500 and 2,400 line voltage.

The 6-cylinder Caterpillar D13000 diesel engine powers the 60-kw sets, the 4-cylinder D8800 engine powers the 40-kw sets, and the 3-cylinder D6100 engine is used on the 25-kw models. General Electric, Harnischfeger, Westinghouse, or Crocker-Wheeler generators are furnished, at the customer's option.

Caterpillar announces that two additional series of diesel electric generators will soon be available—80-kw units powered by the new V-8, 160-hp D17000 diesel engine, and 20-kw generators driven by the 4-cylinder 44-hp D4400 diesel engine. The larger units are particularly adapted for use as marine auxiliaries or for main dredge power plants, while the smaller units are readily adaptable to lighting on construction projects and for furnishing power for electric tools.

A Modern Traffic Line Marker

A machine that will put down a clean-cut uniform traffic line without slopping or edge bleeding on brick, granite block, cobblestone, wood block, broomed or smooth concrete, sheet asphalt, or black top was exhibited by Littleford Bros., 500 East Pearl Street, Cincinnati, Ohio, at the Road Show, and it is now in use by many cities and state highway departements. Not only can this Traf-O-Spray be used for marking the line on the pavement, but it also serves for painting stencils, airway directional signs, guard rails, bridges, and other equipment. The outfit consists of a combination motor and compressor, De Vilbiss spray gun and paint reservoir mounted compactly on a running gear having three pneumatic-tired wheels. It is short



THE LITTLEFORD TRAF-O-SPRAY

coupled, and the spray head is centered so that sharp curves can be marked.

The paint is sprayed onto the pavement and controlled by a trigger type gun. Separate air regulators provide proper pressure on the paint supply and on the air nozzles. The guide discs assure clean-cut lines and are independently mounted on pivot arms, so that they move individually to suit the contour of the surface. They are adjustable to paint any width of line from 3 to 8 inches. The exhaust from the motor blows away all loose dirt particles in the path of the line to be sprayed.

The machine can be cleaned readily, since the paint-can is placed inside the paint container and it is only necessary to remove the can when finished. A little thinner is put in the reservoir and run through the gun. Two or more colors of paint may be used without cleaning on continuous operations. The paint supply can be replenished through the filler plug opening in the cover.

General Playground Equipment Succeeds Hill-Standard

The Hill-Standard Co., well-known manufacturer in the field of equipment for public and private playgrounds, beaches and polls, has been purchased and reorganized under the name of General Playground Equipment, Inc., with headquarters at Kokomo, Ind. Hill-Standard was organized in 1900 and has been operating continuously since that time.

The new company, General Playground Equipment, Inc., has taken over the entire line of Hill-Standard products and will continue to manufacture them in the large plant at Kokomo which was maintained as a manufacturing unit by Hill-Standard. Executives of the new firm announce that the reputation for quality enjoyed by Hill-Standard equipment will be maintained strictly under the new concern's manufacturing policy.

General Playground Equipment, Inc., was incorporated by Walter Edwards, Secretary-Treasurer and General Manager, Jess Dietzen, President, and C. H. Wills, Vice-President, all residents of Kokomo.

Saratoga Springs, N. Y. Opens New Filtration Plant

The new quarter-million-dollar filtration plant designed by Nicholas S. Hill, Jr., consulting engineer, New York City, for Saratoga Springs, N. Y., was opened on February 22, 1936, with an appropriate celebration. F. H. McGraw & Co., New York City, was the general contractor. The contract cost of the plant was $252,463.11. George H. Buck was resident engineer for Mr. Hill.

A Power Mower with a Power-Driven Reel

The Majestic "Thirty" roller type 30-inch power mower with a power-driven reel, made by The Ideal Power Lawn Mower Co., Lansing, Mich., when operated as a walking mower has a capacity of from 4 to 6 acres per day, and as a riding power mower, with its pneumatic-tired riding trailer, it has a capacity of 4 to 8 acres per day. With its long, easy grip handles it turns and guides easily. The gas or throttle control is attached to the handle grip so that a slight turn increases or decreases the speed as desired. The lever for operating the drive clutch is located on the mower handle, and a separate clutch is provided for throwing out the reel when passing over gravel drives and walks. This mower will negotiate 25 to 35 per cent grades easily, and with the riding trailer attached will climb 10 to 20 per cent grades.

It is powered with a Model K Briggs & Stratton 4-cycle 3-horse-power engine running at 1,800 rpm and is equipped with a hand crank starter.

THE IDEAL MAJESTIC "THIRTY" MOWER WITH RIDING TRAILER

NEW YORK CITY BUYS 50

South Bend Street Flushers

SANITARY ECONOMICAL

Manufactured by

MUNICIPAL SUPPLY COMPANY
South Bend, Indiana

Illustrated on Front Cover of This Magazine

SAVE $300 TO $500 EACH MONTH MAKING YOUR OWN REPAIRS WITH THE NEW "SIMPLIFIED" ARC WELDING

In thawing underground water pipes, repairing boilers, and other maintenance work, the new Hobart 40-Volt Welder lets you do it better at a fraction of present cost. Your own men can operate.

30 DAYS' TRIAL AT OUR RISK

lets you convince yourself that you can easily pay for a Hobart in savings. If present budgets will not allow its purchase, special terms can be arranged. Write today for complete details on how you can put this Hobart to work without a cent of cost.

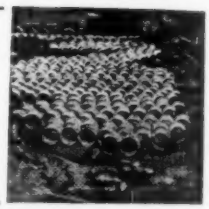
HOBART BROS. BOX AC-36 TROY, OHIO

UNIVERSAL CONCRETE PIPE for Sewers Gives Employment to Local Labor

If a large quantity of pipe is needed, UNIVERSAL installs a temporary plant in your City, employing local labor. If the quantity desired is small, it can be shipped promptly from one of our six permanent plants.

Send list of quantities and sizes needed. We will submit estimates without obligation.

UNIVERSAL CONCRETE PIPE CO.
297 High Street Columbus, Ohio



HAZARD ARMORTITE CABLE

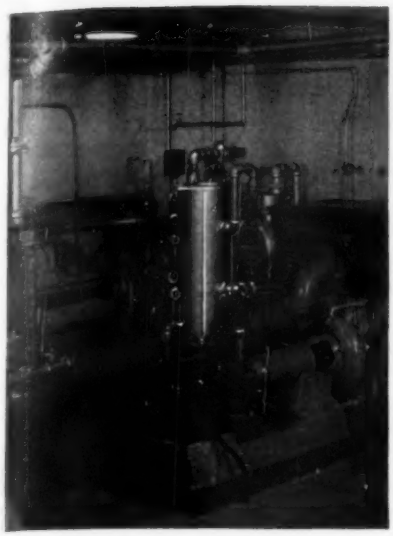
(Non-Metallic Armored)

Underground lighting systems add greatly to the appearance of suburban streets. Hazard Armortite Cable is ideal for this purpose. Armortite is buried directly in the ground without conduits as it is protected against moisture and mechanical injury by plastic sealing compound, asphalted jute coverings and non-metallic tape armor. These materials are not affected by burial in soil. Investigate Armortite before buying any underground cable.

Sales Offices:
New York Chicago Philadelphia
Atlanta Seattle Dallas
Pittsburgh Buffalo Boston
San Francisco Los Angeles

HAZARD INSULATED WIRE WORKS

Division Of THE OKONITE COMPANY
WORKS: WILKES-BARRE, PA.



AN INSTALLATION OF A. P. F. T. TYPE OF FLAME TRAP AT GENEVA, ILL.

Flame Traps for Sewage Digester Gases

From extensive tests, it has been found that it is necessary to provide the following characteristics in an efficient flame trap for use in sewage-treatment plants on sewage-digester gas lines:

A—Complete protection against the passage of flame into the supply line when explosive mixtures are present without using a liquid medium.

B—Protection against burning mixtures.

C—Flame elements which have passages as large as possible, to reduce clogging and pressure losses, but sufficiently small to prevent flame propagation.

D—The flame element should be rugged so as not to rupture after preventing an explosion.

E—The flame element should not be corrosive in the presence of hydrogen sulphide or other corrosive products of sewage gas.

F—The flame element should be readily removable for inspection.

The present type of flame traps made by the Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago, Ill., and described in the new Bulletin 121, provide all the charcteristics outlined above and are simple in design, ruggedly constructed, foolproof and time tested. The type "A" flame trap for plants producing up to 1,000 cubic feet of gas per hour serves as a flame trap, condensation trap and pressure relief valve; the type "B" for larger gas volumes as an explosive-proof flame trap is used in connection with the type "B" pressure relief waste gas unit.

In form the type "A" flame trap looks like a hot-water storage tank mounted on four legs, except for the gage glasses in the front, the clear water funnel at the top and the four tapped openings, two on each side, for the gas and meter connections. The unit consists of an outer shell which houses three separate chambers, the upper one serving as a condensation trap, the middle as a pressure release, and the lower as the flame trap. The over-all dimensions of the standard unit are 23 inches wide and 43 inches high, tapped for 2½-inch standard pipe.

New Line of Light Trucks and Busses

Mack Trucks, Inc., 25 Broadway, New York, has entered the low-price truck and bus field with a line of light Mack Jr trucks and busses in seven models, which range from ½-ton to a 2- to 3-ton model. The Jr line also includes a short-wheelbase traffic type model.

The Mack Jr bus models are available in three designs, including two transit type and one conventional type. One of the Transit Type models will be available with a front-mounted engine; the other will have the engine mounted in the rear. The conventional type bus will have its engine in front.

The ½-ton truck will have a wheelbase of 118 inches with a gross rating of 4,500 pounds. The 1½-ton model, with a gross rating of 10,000 pounds, and the 1½-2-ton truck, gross rating 11,500 pounds, will be available in wheelbases of 139 and 166 inches, and in special wheelbases ranging from 170 to 190 inches. The 2-3-ton model, gross rating 13,500 pounds, will be available in 142- and 166-inch wheelbases, as well as in special wheelbases ranging from 170 to 190 inches. The Traffic Type model in the 2-3-ton truck will be 166 inches, with special wheelbases up to 190 inches and a special 150-inch tractor wheelbase.

The ½-ton truck will be powered with a 6-cylinder gasoline engine developing 72 brake hp at 3,000 rpm. The 1½-ton Model 10M has an engine of 209-cubic-inch displacement, four-speed direct transmission, and a 295¼-square-inch total braking area. The engine of Model 20M, 1½-2-ton, is a 6-cylinder unit developing 74 hp at 3,000 rpm, while the engine for the 2-3-ton model will have a brake hp of 85 at 3,000 rpm.

A feature available on the 10M, 20M and 30M Models will be a two-speed under-drive rear axle, which permits high-speed operation for long level stretches or for occasions where speed is desired more than power. By the operation of a lever in the cab, the under-drive additional ratio of 1.5 to 1 can be brought into operation to give ample gear reduction for hill-climbing ability.

A New Disc Spreader for Road Work

The Differential disc spreader, recently announced by the Universal Crane Co., Lorain, Ohio, is designed for spreading dust or screenings for first and second binder courses and for spreading chips for top dressing in new road construction; for resurfacing, patching, spreading dust-laying chemicals and building up shoulders in road maintenance; and for spreading sand, cinders, salt or calcium chloride on icy highways.

The unit, which is mounted on two wheels, is easily attached to a truck. The ample length of the spreader hopper, plus an adjustable leveling device, enables speedy attachment to varying chassis heights and widths, permitting the use of this unit with practically any dump-truck suitable for this class of road work.

The whirling disc, which distributes dust or screenings uniformly and at a proper angle to penetrate into the voids, is powered by a differential of standard automotive rear axle design. All gears run in lubricant. The unit is equipped with interchangeable discs of different diameters and surfaces for various materials. The flow of material onto the disc is controlled by a single hand lever, actuating an adjustable gate opening. Auxiliary baffle-plates on the side aid in the control of the width of spread. A hinged apron on the front fits against the truck to prevent spilling of material.

The width of spread varies from 4 to 30 feet, under constant control, and from 0 to 100 pounds per square yard can be distributed, depending on the width of the spread.

Contract Awarded for Largest Pumps

The award of a contract to the Worthington Pump and Machinery Corporation, Harrison, N. J., for six centrifugal pumping units of 12,000 horsepower each for the Metropolitan Water District of Los Angeles, Calif., has recently been announced. These six pumps, totaling 72,000 horsepower, are identical, each for a capacity of 90,000 gallons per minute against a total head of 460 feet, the high mark in pump application for this service, and the largest award made. These pumps will be built at the Harrison, N. J., works.

Valentine Made New York District Manager for Patterson

Kenneth S. Valentine has been appointed District Manager of The Patterson Foundry & Machine Co., East Liverpool, Ohio, manufacturers of chemical mixers for water and sewage treatment. Mr. Valentine has had wide experience as Sales Manager and Works Manager for chemical and machinery manufacturers, and is the author of books and articles on mechanical problems of the process industries. He will have charge of sales in Metropolitan New York and in New England and will act in an advisory capacity on mixing problems in general.

ANOTHER **PARK-O-METER** CITY.....

This time it's beautiful Miami

MIAMI, Florida, has been added to the rapidly increasing list of Park-O-Meter cities. In February, 408 meters went into operation in the downtown streets of this world famous city. And judging from the short time they have been in use, Park-O-Meters will be as successful in Miami as they have been in other places. Don't let minor details keep your city from enjoying the many advantages Park-O-Meters offer. Get in step with the times and investigate this practical plan for controlling parking and increasing revenue. It is working in other cities — it will work in yours. Write or wire us today for complete details.

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Commerce Exchange Bldg. *Carl C. Magee, President* Oklahoma City, Okla.

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Latest Developments in Kinney Distributors

An examination of the Kinney asphalt and road oil distributor on exhibit at the Road Show in January showed several improvements which add to the accuracy of this machine made by the Kinney Manufacturing Co., 3529-41 Washington Street, Boston, Mass. A new tachometer has been placed on the pump shaft, and a new governor speed control with micrometer adjustment has been placed where the distributor operator can make the finest adjustment in the volume of bituminous material delivered through the spray bar to the road.

The spray bar has always been cleaned by an air blow, and now the lever which controls the flow of asphalt to the spray bar when pulled to the shut-off position automatically hooks in the air blow, which can be cut off at will by tripping the rod which holds the air-blow control open.

The piping scheme has been simplified so as to eliminate about 40 inches of pipe, making for greater efficiency in the machine. There is a continuous flow of hot asphalt through all valves at all times by the use of three-way valve units.

The machine shown at the Road Show was a 1,000-gallon unit with a Hercules motor, was mounted on a new streamline model 6-wheel White truck, and had an unusually low center of gravity.

Chevrolet 1936 Trucks Include Many Advances

The 1936 trucks announced by Chevrolet Motor Co., Detroit, Mich., comprise a wide range of standard body types mounted on ½-ton and 1½-ton chassis. The design changes include a re-styling of the sheet metal and the adoption of a coupé type cab with a solid steel top. In the chassis the adoption of hydraulic brake operation in conjunction with improved brake mechanism at the wheels is of interest.

Engine improvements include increased power, better fuel and oil economy, and greater durability. The major change in the engine is the use of full-length water jackets, in combination with a higher compression ratio, 6 to 1. The engines of the two chassis models are identical in design and in horsepower and torque. The maximum horsepower is 72 at 3,200 rpm. At 1,000 rpm the horsepower is 30, and at 2,000 it is 57½. Maximum torque is obtained over an unusually wide range of engine speeds, 155-foot pounds being maintained all the way from 900 to 1,500 rpm.

The 1½-ton chassis now has a full-floating rear axle and a stronger housing which includes a malleable iron differential case and seamless steel axle tubes. The rear axle loads are carried on the housing, instead of on the axle shafts, which now have only to drive the wheels. The steering gear on both models has been improved in action and durability by the adoption of a larger pitman shaft with longer bushings and a larger pitman arm. The front spring hanger of the 1½-ton truck has two safety stops, to limit the movement of the axle in case of spring breakage. These stops are heavy lugs on the hanger, allowing normal shackle movement, but capable of taking the entire load, should the main leaf of the spring break.

P&H Motor Sales Division Has New Sales Manager

Harnischfeger Corporation, Milwaukee, Wis., has announced the appointment of Charles R. Surface as Sales Manager of the P&H Electric Motor Sales Division. Mr. Surface was formerly with the Sprague Electric Works of the General Electric Co. and later connected with the Westinghouse Electric & Manufacturing Co., in the Industrial Division of the Chicago district office. He is now located at the home office of Harnischfeger in Milwaukee in charge of sales covering the complete line of P&H motors and electric plants.

Tulsa, Okla., Buys New Equipment

Numerous departments of the Tulsa, Okla., city administration have improved transportation facilities as a result of the purchase of twenty new Ford V-8 passenger cars and trucks. The illustration shows the new equipment with city officials and representatives of the Adams Motor Co., of Tulsa, which delivered the cars and trucks.

Important among the twenty new vehicles is a radio-equipped pick-up for the city animal pound, which is expected to be a valuable aid in keeping the streets of the city rid of stray dogs. By means of the radio, officers cruising in the car can be advised of the location of a stray dog and can arrive at the designated location before the dog has had time to escape.

Included also are thirteen radio-equipped sedans for the Police Department, a sedan for the Juvenile Court officer, one for the Fire Chief, a truck for the Fire Alarm Maintenance Department, and two trucks and one pick-up for the Water Department.

A New Rubber Joint for Sewer Pipe

A new rubber joint for use with specially constructed ceramic pipe in low-pressure service has been announced by the B. F. Goodrich Co., Akron, Ohio. This Flexlock joint is made for a maximum pressure of 15 pounds per square inch and can be used in temperatures not exceeding 175 degrees F. It is said to offer a permanent, positive seal for bell-and-spigot pipe, and its adaptation to ceramic pipe was developed in cooperation with the Robinson Clay Products Co., and the U. S. Stoneware Co.

The Flexlock joint is a rubber ring or gasket having internal and external circumferential ribs which grip the bell and spigot of the pipe. While the gasket permits easy insertion of the spigot, the shape of the corrugations, combined with the resilience of the rubber, forms a multiple seal which resists any tendency of the pipe sections to pull apart. The effect of pressure is to make the joint tighter. It is waterproof, rootproof and flexible, does not deteriorate with age and resists corrosion, and serves to cushion and align the pipe.

Installation is described as simple and can be made by ordinary workmen. The gasket is first placed in the bell socket. The exposed surface of the rubber and the outside contact surface of the spigot are lubricated with Goodrich Lubriseal, a special liquid lubricant adapted for use with rubber. The spigot is then pushed into the bell, thus engaging the joint. In pipe sizes which can be manually handled, the joint may be made without any equipment. On larger sizes, a screw jack or yoke-type pulling device is required to propel the pipe together. Since this joint is not affected by water, it can be used in wet trenches. The Flexlock gasket is offered in two types for use with vitrified sewer pipe and chemical stoneware pipe. Both types of pipe, made to Flexlock specifications, are available in a range of sizes up to 36 inches.

Water Rates Reprinted

Two pamphlets of water rates and service charges, hydrant rentals and fire sprinkler rates are available at $1.00 each, or $1.50 for the pair.

TWENTY NEW FORD V-8 PASSENGER CARS AND TRUCKS RECENTLY PURCHASED BY THE CITY OF TULSA, OKLA.

The gentlemen in the foreground are, left to right: J. J. Murphy, Sales Manager; Al. W. Holmgren, Salesman; Police Commissioner O. W. Hoop; Chief of Police Charles F. Carr; Mayor T. A. Penney; Fire Chief R. W. Granger; C. R. Adams, President, and W. G. Hawkins, Secretary-Treasurer, of the Adams Motor Co.

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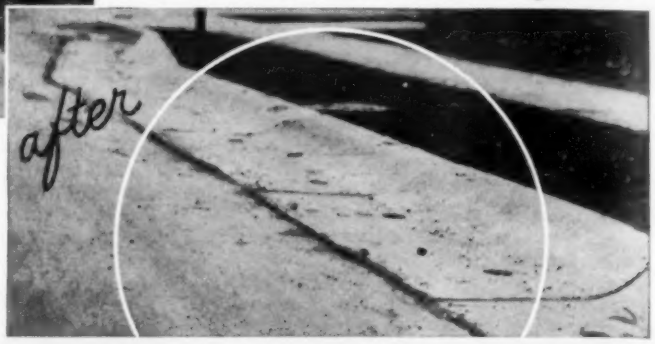

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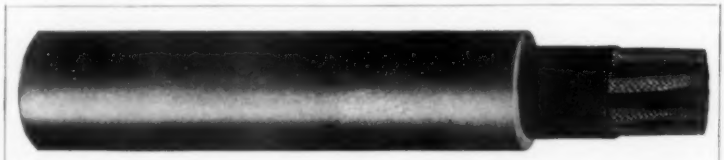

LATOX lead sheathed Control Cables are designed for usual supervisory control operating voltages, with solid or stranded conductors each insulated with LATOX rubber insulation and covered with a cotton braid.

LATOX lead sheathed Fire Alarm and Police Signal Cables because of their small diameter, light weight, long life and low maintenance cost are particularly suited for installation in crowded ducts under city streets.

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Descriptive booklet upon request "LATOX Lead Covered Cables"

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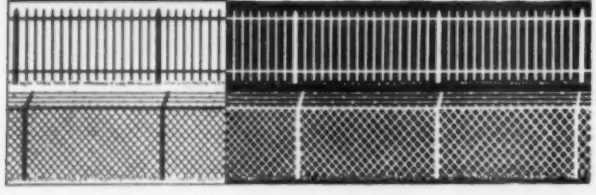

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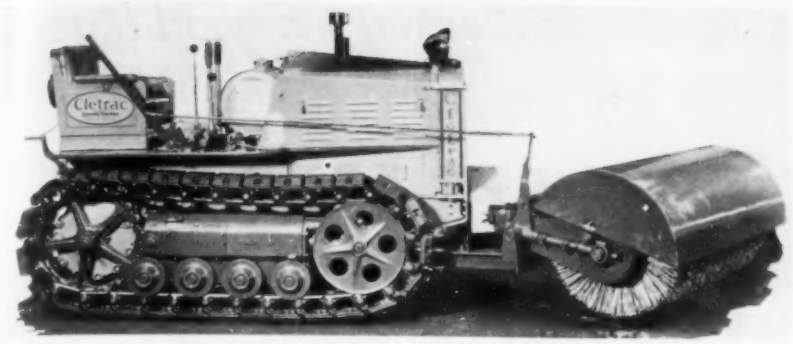


THE DETROIT HARVESTER-CLETRAC SIDEWALK SWEEPER

Keep Your Sidewalks Clean

Constant sweeping of sidewalks during snowstorms means a great deal to pedestrians. If the sweeping is done mechanically and frequently enough, there will be no accumulation of snow to be plowed off the following day. The revolving machine broom made by the Detroit Harvester Co., Detroit, Mich., and mounted on a Model EN Cletrac, made by the Cleveland Tractor Co., Cleveland, Ohio, makes a combination which is effective for cleaning snow from sidewalks, streets, railroad crossings and station platforms. It is equally effective in sweeping dirt and leaves from sidewalks.

The tractor is 42 inches wide over-all, and the broom has a sweeping width of 42 inches. This narrow width permits the operation of the unit in close quarters, where wider equipment could not work.

Traffic Markers Scrub Paint Into Surface

Traffic Chief traffic line markers, which were exhibited by the Wright-Dalton Machinery Co., Durham, N. C., at the Road Show last month, paint solid or skip lines from 2 to 6 inches in width, depending on the width of the brush. The principle of this marker is that it rolls the paint and scrubs it into the pores of the surface. Any paint or enamel that can be applied with a brush can be used.

The brush is completely circular, applying the paint with a rolling, dragging motion. In painting solid lines, the brush contacts the road surface continuously. By operating the resetting lever on the left handle of the machine, intermittent lines, caused by the raising and lowering of the brush, can be painted. On this type of stripe, the brush contacts the surface for 5½ feet and then skips 5½ feet. The paint conveyor is an endless belt, conveying the paint from the tank to the brush and keeping the paint in the tank agitated while the machine is in operation. The priming handle furnishes fresh paint for a new start after the machine has been idle for several hours. A regulator lever supplies the correct amount of paint for rough or smooth pavement conditions. The paint container or tank is a separate unit, of 7-gallon capacity, which can be lifted from the chassis and handled like a paint bucket.

Traffic Chief zone markers are made in four models, equipped to meet all highway and city marking problems. Model H. P. is powered by a 3-hp gasoline engine and is designed for use where miles of highways or city streets are to be marked. It has a normal operating speed of 4 to 8 miles an hour, depending on surface conditions. Model H. T. can be operated by hand or attached to a moving truck. When pulled by a truck, it will apply paint at the rate of 4 to 6 miles an hour, either solid or intermittent marking.

Model H, also designed for solid or intermittent marking, is operated by hand and applies paint at the rate of about 4 miles an hour. Model C is a hand machine, designed primarily for city traffic marking. It applies paint in a solid line only, 2 to 4 inches in width.

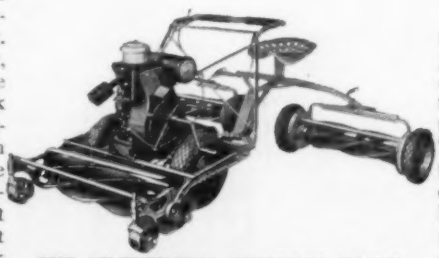
Further details on these markers may be secured by state, county and city engineers direct from the manufacturer.

A Heavy-Duty Three-Unit Gang Motor Mower

The Fleetway Seventy-Five heavy-duty Moto-Mower is a three-unit gang mower for small golf clubs, athletic grounds, parks, and other large lawn areas where large tractor-driven equipment is not practical. The frame which joins the two units, and which may be instantly connected or disconected from the main unit, is so constructed as to permit the mowers to accommodate themselves to the uneven contour of the ground, and the hitch is designed to prevent bobbing of the cutting units.

The heavy-duty, high-speed trailer cutting unit is especially designed to be used in connection with a power-driven unit. The cutting width is 24 inches. The traction driven wheels are fitted with 12-inch x 3-inch pneumatic tires and revolve on a double set of ball bearings. The unit is of interlocking frame construction and accurately machined. The patented cutter bar adjustment is interlocking with the frame, producing a very strong frame construction, making it practically impossible to twist the mower out of alignment.

The reel is 7 inches in diameter with five blades of crucible tool steel, oil tempered. It is geared on both sides and revolves at high speed on self-adjusting Timken roller bearings, which, if properly lubricated, remain in adjustment. A three-section wood roller is installed at the rear of the reel. The Fleetway is made by the Moto-Mower Co., Detroit, Mich.



THE SEVENTY-FIVE FLEETWAY HEAVY-DUTY MOTO-MOWER

THE SADDLEBAG MOUNTING OF THE NEW HARLEY-DAVIDSON RADIO

New Police Motorcycle Radio

Tested development has resulted in a new police motorcycle radio offered by Harley-Davidson Motor Co., Milwaukee, Wis., for Harley-Davidson machines. This radio receiver is designed for installation astride the rear wheel of the motorcycle, similar to a pair of saddlebags. It is divided into two units, each of which is housed in a waterproof steel box secured by means of shock-absorbing rubber cushions.

The radio receiver chassis proper is mounted in a cadmium-plated, rustproof box on the left side of the carrier and is connected by means of a cable to the box on the right side which houses the vibrator type "B" current supply. The receiver is an efficient, sensitive, five-tube super-heterodyne. It is tuned to operate on any frequency in the police bands from 1525 to 1720 kilocycles or from 2300 to 2500 kilocycles. The tuning controls are provided with lock nuts which prevent shifting of adjustments.

Voters judge your administration by the good it does

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HOW TO GET MORE FOR YOUR MONEY

OUT OF PARK INVESTMENTS

★ ★ ★ ★ PARK property is a valuable asset to your city; its value can be measured in the number of people that use it. Increase this number of people, and you increase the return on your investment.

Normally, the recreational value of a park stops shortly after sundown. Tennis courts and soft-ball diamonds become useless; swimming pools become actually dangerous. And yet a large number of people can use these courts and fields only in the two or three hours between five o'clock and darkness.

Floodlighting extends their usefulness from dusk until late in the evening. It makes sport and recreation available to everyone for three or four more hours a day—hours when the greatest number of people can use them. Floodlighting, for a negligible part of the cost of a park, may conceivably double its usefulness—giving you almost twice as much for your recreational dollar.

General Electric lighting experts have already made layouts for most standard sports fields, and these men are at your service to give recommendations or engineer installations for your own particular needs. The new G-E floodlighting catalog should be valuable to you as a reference on the various types of equipment available and for the recommendations it contains. Write for it today; there is no obligation. General Electric, Schenectady, N. Y.

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Please send me your latest catalog on floodlighting equipment (GEA-1865A).

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GENERAL ELECTRIC

The motorcycle storage battery is the source of all power required for operation of the radio. The total current consumed by the radio is only 2.7 amperes.

The compact, cast aluminum speaker is mounted on the motorcycle handlebar and is of the air-column type using a magnetic unit. The antenna is of the plate type, having an area of 1¾ square feet, and is suspended beneath the motorcycle frame by rubber insulators. A high output generator is used on motorcycles equipped with this police radio, so that the motorcycle battery provides ample current for ignition and lighting as well as for the radio.

A WORTHINGTON TRACTOR HANDLING A PLANE AT AN AIRPORT

A Light Tractor for Airports

The Ford-engined tractor made by Worthington Mower Co., Stroudsburg, Pa., is equipped for both pulling and pushing planes at airports. It will make a complete turn around in a 6½-foot radius and has a speed of 25 miles an hour, and the motor has three speeds forward and one in reverse.

The wheels are fitted with noiseless Airway balloon tires, the wheelbase is 61 inches, the widths over-all 68 inches, and the tractor alone weighs only 1,470 pounds. It can be equipped with a power take-off and sickle bar for mowing tall grass and weeds.

The manufacturer claims that these tractors have sufficient power to do their work slowly in hangars or to get into quick 25-mile speed on the field.

A Non-Shrinking Fire-Resisting Plaster

A plaster which will not transmit flame or heat, yet is light-weight, non-shrinkable, adhesive and easy to apply, has been developed by the Safety Plaster Sales Corporation, 42 Market Street, Passaic, N. J. Kaminex safety plaster has been torch-tested, using a gasoline blow torch held two inches from the surface for one hour without igniting a sheet of thin cardboard placed against the back of the plaster. It weighs not over 3½ pounds per square foot when applied ¾-inch thick. It is ready-mixed at the factory, requiring no material other than water to be added on the job. The cost of Kaminex safety plaster per square yard ¼-inch in thickness is 16 2/3 cents at $35 per ton.

A Constant-Weight Feeder for Water-Works Chemicals

A new constant-weight feeder for continuously feeding and weighing materials at accurate rates has been announced by the Jeffrey-Traylor Division, Jeffrey Manufacturing Co., Columbus, Ohio. The unit consists of a vibrating feeder controlled electrically by a balanced weighing belt equipped with an adjustable counterpoise for setting the desired rate of discharge. All gates for regulating the flow of material are eliminated, and weighing accuracy is obtained by the sensitiveness of the scale. Through its electrical control, the vibrating feeder is regulated to satisfy the weighing belt at all times and thus keep it in operating balance.

The cabinet control box may be located at the feeder or some distance away, using any number of remote-control devices. On the control panel, flasher lights at all times give visual evidence of correct operation. The unit operates from any alternating-current light circuit.

The unit is said to be accurate to plus or minus 1 per cent or less, and can be set to deliver with uniform accuracy any rate from minimum to maximum. The capacity range of the unit illustrated is from 3 to 3,000 pounds per hour. This feeder has an application to water purification in the handling of water-works chemicals.

Cedar Falls, Iowa, Installs New Water-Gas Plant

The city of Cedar Falls, Iowa, has awarded a contract to the Semet-Solvay Engineering Corporation, New York City, for a new water-gas plant. The new equipment purchased will include a gas holder, two Semet-Solvay water-gas machines, blowers, a condenser, tar extractor, exhausters, purifiers, tar storage tank, meter and scales. The water-gas machines will be equipped for back-run operation. Work on this contract will be undertaken at once, and the plant will be ready for service in the spring.

New York's Motor Equipment

The motor trucks illustrated on the front cover of this issue of THE AMERICAN CITY show a group of Autocar trucks owned by New York City Departments and equipped as follows: dump-truck bodies by Fitz Gibbon & Crisp, Trenton, N. J., with Commercial Shearing & Stamping Co. hoisting equipment; flushing equipment by Municipal Supply Co., South Bend, Ind.; and the equipment for the Weights and Measures truck by Silent Winch & Hoist Co., Brooklyn, N. Y.; snow-plows by Good Roads Machinery Co., Kennett Square, Pa.

Hersey Moves N. Y. Office

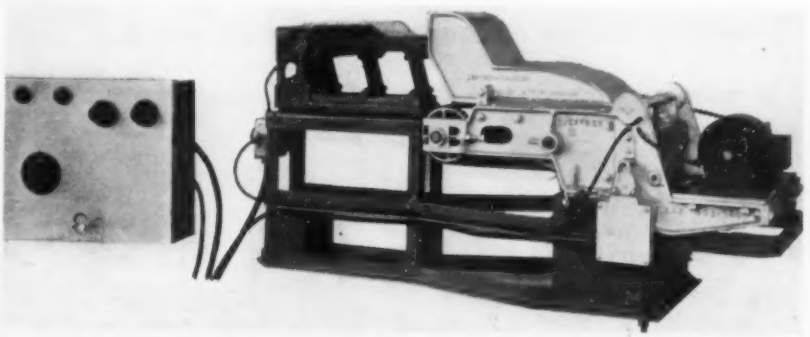
Hersey Manufacturing Co. has announced the removal of its New York office to Room 1273, 5 Church Street, as of March, 1936. W. B. Cambridge is Manager of the New York Office.

Hodgson Opens Atlanta Office

J. L. Hodgson has opened an office at 901-910 William-Oliver Building, Atlanta, Ga., to represent the National Water Main Cleaning Co., New York City, Jos. G. Pollard & Co. of Brooklyn, N. Y., and A. P. Smith Mfg. Co., East Orange, N. J.

Clyde Hum Joins Meter and Valve Company

Pittsburgh Equitable Meter Co., and its subsidiary, Merco Nordstrom Valve Co., Pittsburgh, Pa., have announced the appointment of Clyde Hum to the sales force. After serving in the World War following his graduation from the University of Michigan, he was appointed City Manager of Grosse Point, Mich. Mr. Hum will work out of the Chicago offices and will represent these companies in Indiana and Illinois.



THE NEW JEFFREY-TRAYLOR VIBRATING CHEMICAL FEEDER

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SAFETY
Headlights and Street Lights—safeguards of night traffic • With adequate street lighting, traffic accidents, traffic fatalities, can be reduced as surveys have proved and records show • To the man behind the wheel, to the pedestrian on your streets, better Street Lighting means better Sight —Safety • L-M Street Lighting Equipment can make your streets safer • Write to Line Material Company, South Milwaukee, Wis. for information • Experienced Engineers, specialists in modern Street Lighting, are at your service to assist you •
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Outdoor Lighting

A Section of The American City
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Lighting System Praised by Experts and Laymen Alike

By ROBERT B. ELY

Illuminating Engineer, Westinghouse Electric & Mfg. Co., Boston

ONE of the most attractive lighting installations in New England has recently been installed in the city of Holyoke, Mass. Satisfaction in the results is expressed by A. W. Darby, Superintendent of the Gas and Electric Department, and Mayor William P. Yoerg, who speaks also for the people of Holyoke.

These results consist not only of the new quality of the light attained by a newly-developed luminaire, but also in the design of the system and the important fact that in the business district the conductors have been placed underground. The next step will be the removal of the wood poles. During the last three years this improvement work has been pushed both in the business district and in other streets, at a cost of $208,000 for conduits, wires and street lighting.

Mr. Darby has developed a plan by which distribution wires are gradually being placed underground, and has so standardized his equipment that either upright ornamental luminaires or pendant fixtures may be attached to one type and size of Hollowspun granite standards. Several hundred have been installed.

The latest installation consists of 15-foot standards equipped with aluminum brackets (Atlantic City type) with 4-foot extensions, and the new Multilux Senior luminaire and 4,000-lumen lamps shown here. The upward sweep of the bracket gives a mounting height of 16½ feet. Another bracket, shown, is provided to carry street signs. To prevent rust and maintenance cost, aluminum fittings are used where attachment is made to the standard. In other parts of the city, upright ornamental luminaires are mounted directly on top of the standard. The luminaire is of aluminum with an interior reflector. Exterior adjustments set the light center within the refractor.

Westinghouse Multilux Sr. pendant with Holophane 4177-VF asymmetric B-way bowl refractors

This particular installation extends for six blocks along Dwight Street, from Northampton to Pleasant Streets. The 17 units are skillfully staggered to provide uniform illumination. The extension of the luminaires over the roadway is especially beneficial when the surface is wet, increasing ability to see objects by silhouette. Safety is still further increased by a greater intensity of illumination.

"I know," says Mr. Darby, "that we are looking forward to a continuance of this style to make the system as much a unit as it could possibly be made. I feel that as the new lighting goes in, this system will be followed. It is a matter of great satisfaction to me to see the fine results from this installation, not only from a lighting standpoint but from an artistic standpoint."

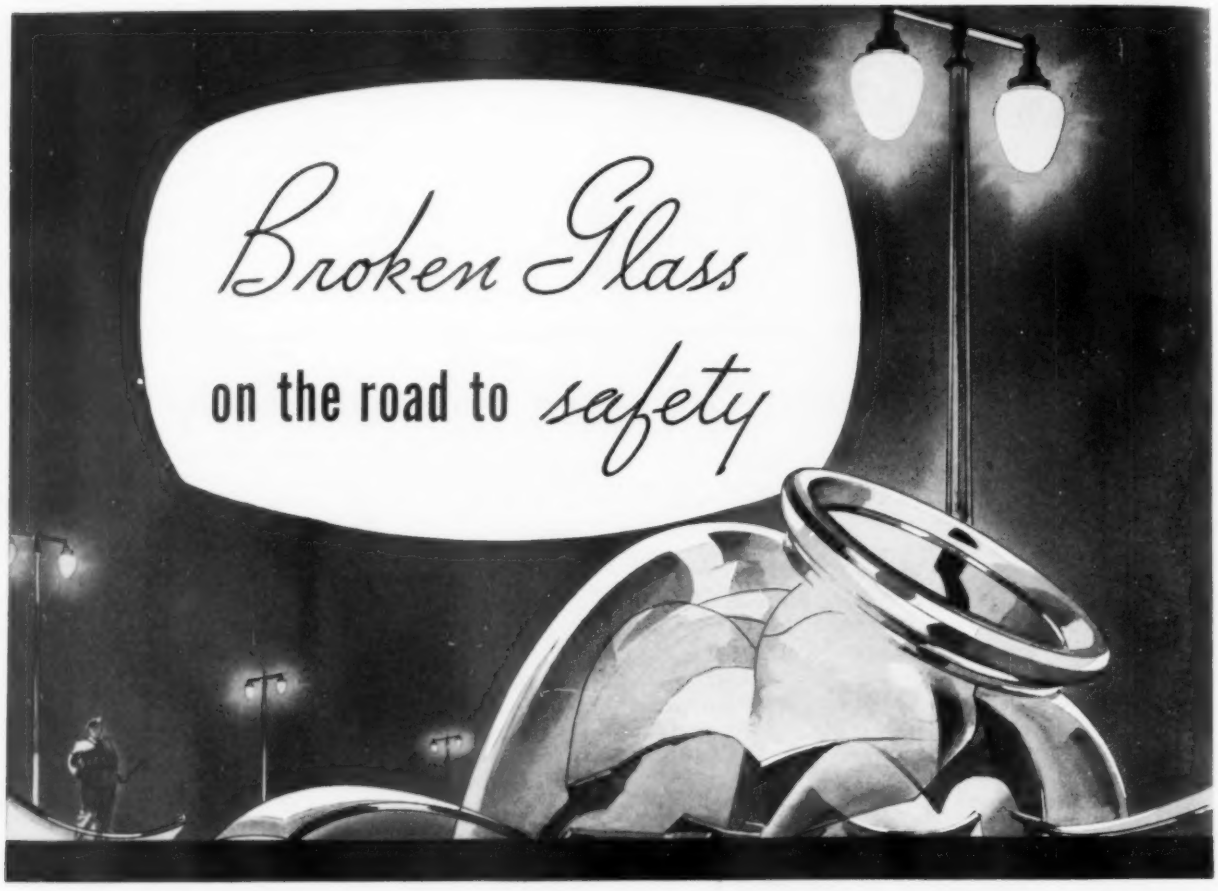
New Street-Lighting Units in Europe and America

By THOMAS W. ROLPH

THE last few years have seen great activity in the street-lighting field abroad.

In England, engineers are working for reasonably uniform illumination and street surface brightness. Since the pavements are rather specular, the surface brightness is obtained largely by specular reflection of light emitted by distant light sources at high angles. Both illumination and street brightness are obtained with the refractor type of light distribution, giving maximum candlepower at approximately 75 degrees with some light above this angle and a small amount as high as 90 degrees. This practice is similar to the better practice in the United States.

In France there is much street lighting of the refractor type, but in recent years "shielding reflectors" have been introduced. This type of reflector extends down over the lamp far enough to shield distant light-sources from view. Shielding reflectors cannot spread the light as far as refractors spread it; hence, closer



If you are sincerely interested in reducing traffic accidents, look to your street *at night!* Two out of three motor mishaps occur then, a large percentage of which could be prevented by more efficient maintenance of the street lighting system.

Broken street lights not promptly replaced . . . glassware dimmed by dust and grime . . . glaring relics of more leisurely days . . . *these* present a constant menace to motoring safety!

It is proved that adequate, efficient street lighting glassware, properly maintained, pays its cost many times over in savings and safety. That's why it's so important to choose your glassware with care. Insist on quality such as Westinghouse offers.

Westinghouse glassware features a seared fitter that reduces breakage and makes maintenance easier and less costly. Every piece is annealed to prevent stresses and strains. Every piece is rigidly inspected and weighed to assure uniform thickness and greater durability. Every piece is made of glass scientifically formulated for maximum efficiency and diffusing qualities.

No matter what the type of your present street lighting system, there is genuine Westinghouse glassware in a wide range of styles to fit it. For complete details see your Westinghouse Distributor, or write Westinghouse Electric & Manufacturing Co., Lighting Division, Edgewater Park, Cleveland, O.

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spacings are required. While refractors customarily give maximum candlepower at 75 degrees and produce uniform illumination at eight times the mounting height, the French shielding reflectors give maximum candlepower at about 65 degrees and produce uniform illumination at a spacing four to five times the mounting height. Naturally, the closer spacing requires an increase in installation cost as compared with the spacing customary in England and America. In spite of this handicap, a considerable mileage of shielding reflector lighting has been installed in France during the last few years. No attempt has been made to install these reflectors at any spacing wider than the proper one. Spacing-height ratios materially greater than 5 to 1 are rarely found, and in an inspection of many of these installations in France at night, the writer never found a case of the well-known "spotty" effect which always accompanies the use of a spacing too wide for the type of equipment used.

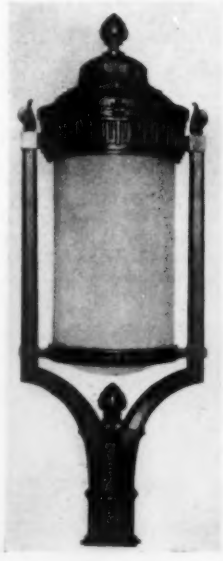
As might be expected, these French installations lack the pavement brightness produced by specular reflection from distant sources. This is compensated for, in part by the rather diffuse character of the French pavements, and in part by the use of an intensity of illumination high enough to provide good lighting without the high pavement brightness given by specular reflection.

Shielding reflector lighting is being tried out on a limited scale in this country. It is not new here, for it was introduced almost twenty-five years ago by the Holophane Co. in an installation in Cincinnati. At that time the close spacing of four to five times the mounting height proved to be a cost handicap too great for the conditions then existing; and so, wider spacing, with the refractor type of distribution, came to be the type of street lighting generally used in the better American installations. It is questionable whether the economic conditions of today will justify a change to the closer spacing of four to five times the mounting height required for the proper use of open type reflector units.

ABOVE, REFLECTING LUMINAIRES AT NANTERRE, AND, AT RIGHT, ON THE CANNES-MENTON HIGHWAY, FRANCE

At left: 500-watt lamps, spacing 147.5 feet; height 29.7 feet; spacing height ratio 5.3

At right: Stretch of 37.3 miles; 300-watt lamps; spacing 115 feet; height 24.6 feet; spacing-height ratio 4.7



To Illuminate the Mall at Washington, D. C.

COMPLETION of the lighting of the Mall in Washington, D. C., under the direction of C. Marshall Finnan, of the National Capital Parks Branch of the National Parks Service, marks an important stage in the fulfillment of an outstanding architectural plan. The lighting is by 188 ornamental bronze lanterns and standards designed by J. W. Gosling of the Illuminating Laboratory of the General Electric Co.

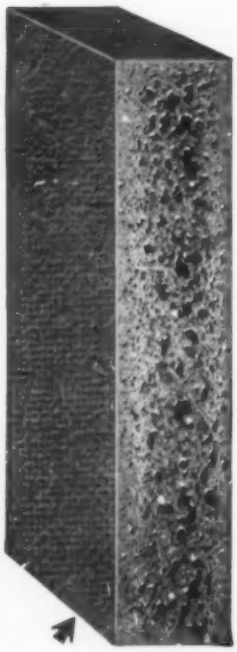
The Mall is part of the famous L'Enfant Plan of the National Capital and is a broad concourse running from the Capitol to the Washington Monument and the Lincoln Memorial connecting with the Arlington Memorial Bridge over the Potomac. This project, guided by the National Commission of Fine Arts appointed by Theodore Roosevelt to revive the L'Enfant Plan, has been continuously carried on by other presidents.

The lanterns embody the latest developments in street and boulevard illumination. They are bronze, with ornamental globes in the form of vertical cylinders. To avoid the daytime whiteness of opal glass, the cylinders are clear, with what is known as a crystal rough inside finish. By day the glassware is a soft pale gray. The incandescent lamp bulb is mounted at the top of the cylinder inside an aluminum reflector, which directs the light downward and outward with exceptional efficiency, a modern development in street illumination. The standards were furnished by the Union Metal Manufacturing Co.

AMERICA'S BRIGHTEST ALLEY

In an effort to prevent criminal prowling two sodium lamps and one mercury-incandescent have been installed by the Commonwealth Edison Co. of Chicago in an alley extending from South Dearborn to South Clark Street.

Servicised
EXPANSION JOINTS



Sponge Rubber Joint—compressed to 50% thickness—the extrusion .50—recovery one hour 90-95% Felt or Mastic sides.

Premoulded Cork Joint

Premoulded Cork Joint—compressed to 50% thickness—the extrusion .25—recovery 90-95%.

Felt Sided Asphalt Joint—compressed to 66% thickness—the extrusion .50—recovery one hour 68%—contains 70% Asphalt. Furnished with or without metal escapes or seals.

Type B Asphalt Joint—compressed to 66% thickness—the extrusion .42—recovery one hour 70%—contains 65% Asphalt. Furnished with or without metal escapes or seals.

Cork Fiber Joint—compressed to 64% thickness—the extrusion .42—recovery one hour 71%—contains 38% Asphalt. Furnished with or without metal escapes or seals.

Fiber Joint—compressed to 50% thickness—the extrusion practically nil—recovery one hour 70-75%.

THE above types of joint illustrate SERVICISED service to engineers and contractors in providing both the controlled oozing and non-oozing types of expansion joint. The specifications of the various types are shown under each type and are the minimum and not the maximum tests.

Our types of non-oozing joints will not warp or shrink in the hot sun or hot weather eliminating the necessity of wetting down before using.

The oozing types of joint are controlled by metal escape accessories making provision for the surplus flow under pressure. We also furnish engineers extruded joints for the reception of metal fittings and specialize on extruded products for engineers in State, Municipal, Railroad and Civil work.

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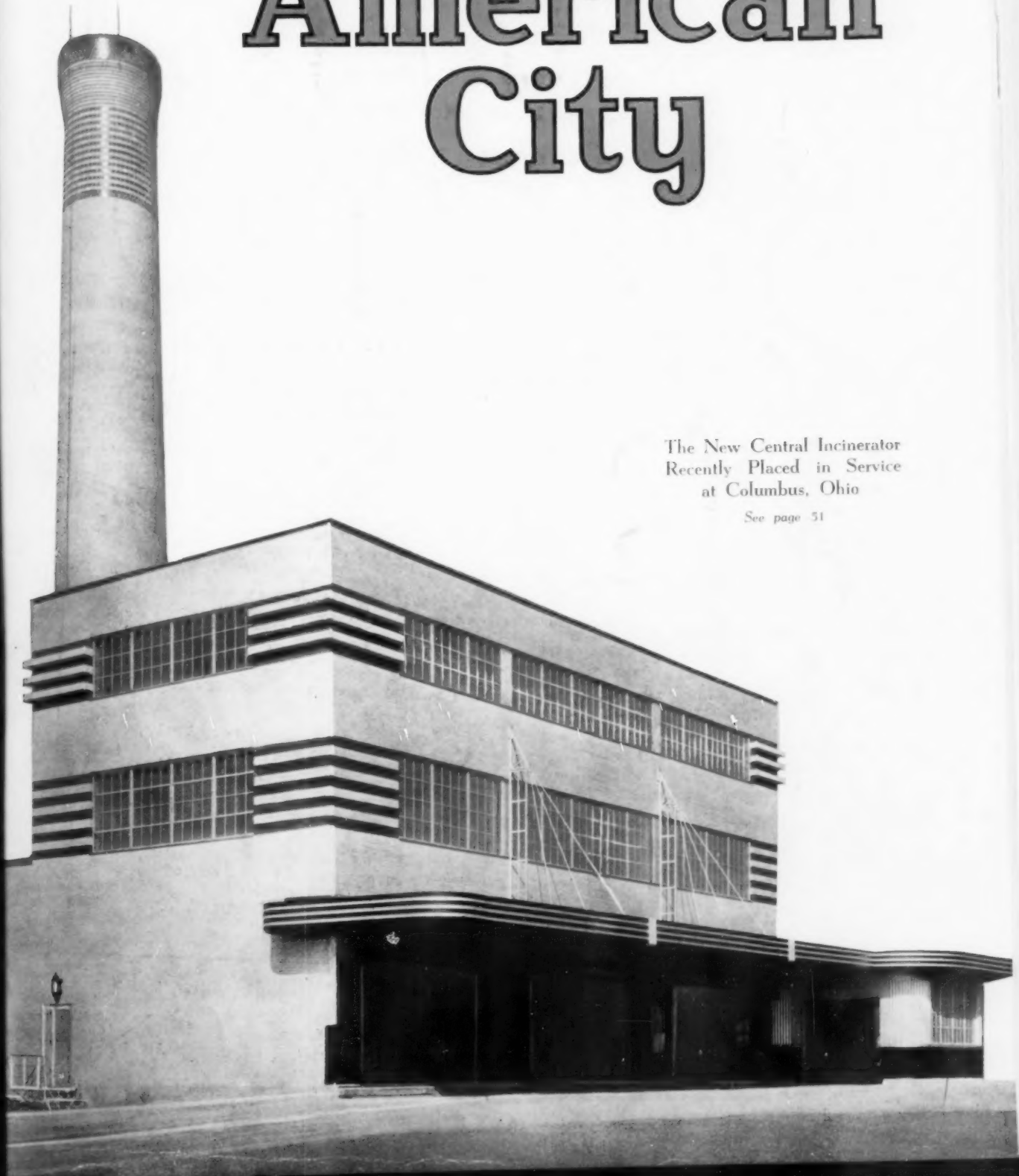

The New Central Incinerator Recently Placed in Service at Columbus, Ohio

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